Chemical Week

March 7, 1953

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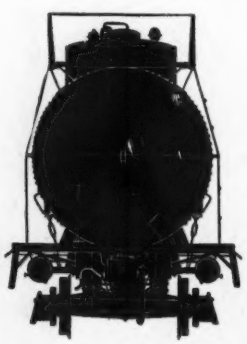

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Chemical Week

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Chemical Week (including Chemical Specialties and Chemical Industries) is published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), founder. **Publication Office:** 1309 Noble St., Philadelphia 23, Pa.

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President. Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions to Chemical Week are solicited in the chemical and process industries from management men in administration, research, production and distribution. Position and company connection must be indicated on subscription order. Address all subscription communications to Chemical Week Subscription Service, 1309 Noble St., Philadelphia 23, Pa., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Single copies 35¢. Subscription rates—United States and Possessions $5.00 a year; $8.00 for two years; $10.00 for three years. Canada $6.00 for a year; $10.00 for two years; $12.00 of three years. Other Western Hemisphere Countries $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries $25.00 a year; $40.00 for two years; $50.00 for three years. Entered as second class matter December 20, 1951, at the Post Office at Philadelphia 23, Pa., under the Act of March 3, 1879. Printed in U.S.A.

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Acidity, %, max.	as Phosphoric 0.01	as Phthalic 0.01	as Phthalic 0.01
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†American Public Health Association Standard

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OPINION . . .

Teeth vs. Lawns

TO THE EDITOR: Your article "Tempest in a Reservoir" (CW, Feb. 14) does not seem to me in keeping with your customary factual newswriting. . . .

You may be assuming because most of your readers—like myself—are in the chemical business, that we are all ardent proponents of fluoridation or any other "——dation" which helps swell the sale of any chemical. If so, you just could be slightly mistaken.

On the assumption that you know some of the technical aspects of the subjects you write about, I presume you know . . . that in most water-using communities in this country . . . out of every *one hundred gallons* of water pumped into the reservoirs, approximately *one quart* only is used for drinking or the cooking of food—the balance is used for washing, watering lawns, putting out fires. . . .

Furthermore, I believe dental experts feel that no beneficial effects of fluoridation are realized in persons over about age 15, which group may constitute about one-fourth of our population.

Thus in fluoridating a public water supply, we treat some 1,600 parts of water to include the one part which may help prevent dental caries. This strikes me somewhat like a scheme would be to fertilize the fields and gardens of the Bermuda Islands (area 19 square miles) by broadcasting chemical fertilizer from low-flying planes over the 30,000 odd square mile area of Atlantic Ocean in which the Islands happen to be located. Some of it would reach the gardens, most would go in the ocean, but what a lot of fertilizer would be used.

By your standards of editorial intolerance, opponents of such a scheme which showers fertility on those who don't want it, as well as on those who welcome all gratuities for the "public good," also could be characterized as "Those who Rant" and "bawl" their reproval—blatant terms which as a water commissioner in a small urban community and as an opponent of wholesale fluoridation, I consider ill-chosen and impudent. . . .

For those who want fluoridation for their children's teeth—rather than for

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

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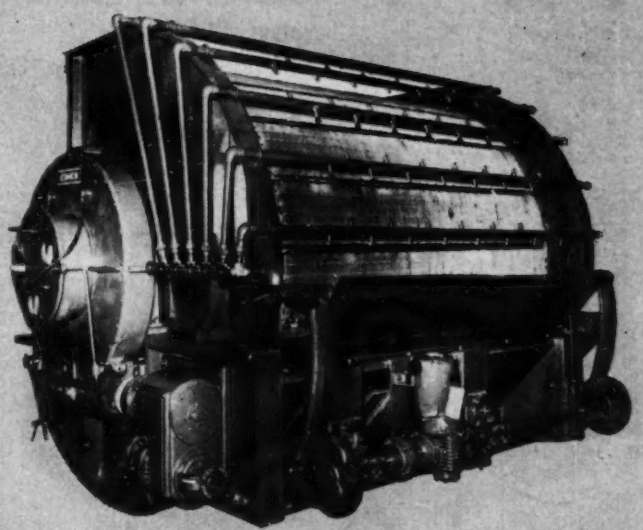

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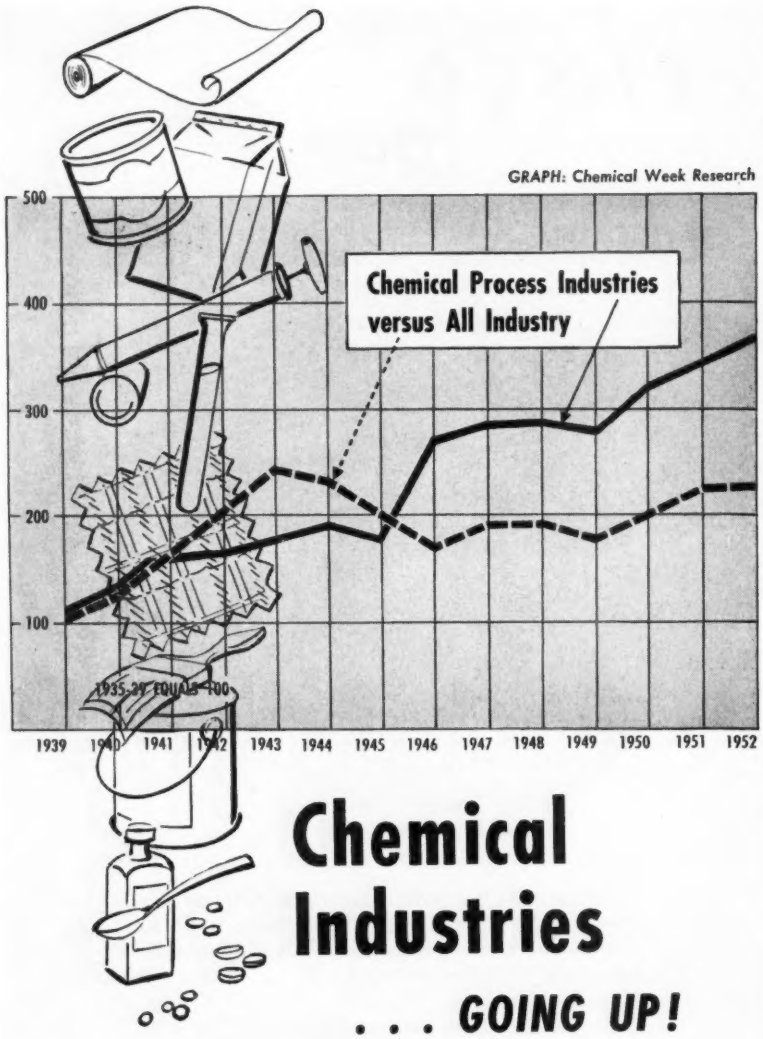

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OPINION. . . . . .

their lawns, washtubs and bathrooms—dentists tell us inexpensive direct application of fluorides are effective. To some interests, however, there might be two objections to this: first, the costs of such direct application while small, are paid for by the parents of the child treated, instead of by the Great White Father in Washington or his local counterparts; and second, sales of soluble fluorides for the prevention of dental caries, might be only about one-tenth of one percent as much as by fluoridation of water supplies.

Offensive and irresponsible ramblings in an otherwise reputable chemical publication do the entire chemical industry a great disservice and provide grist for the false contentions of publicity seekers who would have the people believe that our chemical companies are out to fatten their corporate purses by any means, including the indiscriminate use of chemicals in water and in foods, as witness the Delaney Committee hearings, of which you have doubtless heard.

Your statement . . . that "most of the national opposition is led by the Christian Science Church," is unintended praise for an organization that respects the individual's right of self-determination . . . has consistently opposed the intrusion of planned government meddling in our personal lives and the socialistic trend of the corrupt "Welfare State," of which the mass fluoridation of water supplies strongly savors.

Let us be sure of our facts before we characterize opinions differing from ours as "bawlings," "rantings," and "ravings," and even when we are sure, may we not use terms which do not appear to be refrains borrowed from the "Missouri Waltz?"

D. M. GRAY
Pittsburgh, Pa.

With your views on fluoridation we have no quarrel, Reader Gray, simply because—as we have said on several previous occasions—CW has taken no stand on the subject and intends to take none. The reason: CW's editors are chemists or chemical engineers (and drink as much water as anyone). We feel it is beyond our province to express opinions on an issue which should be decided by medical men.

Whether our reporting of both the pros and cons was irresponsible rambling, intolerant, non-factual, etc., is, we believe, partly a matter of opinion, although any reader is certainly entitled to his views thereon. We deny any such charge, insist that a careful, unemotional reading will justify our contention that we were factual and unbiased—albeit forthright.—ED.

OPINION . . . . . .

Grand Rapids Mystery

TO THE EDITOR: I think that your review ("Tempest in a Reservoir") is interesting, up to date, and without obvious bias. It would be very desirable, however, for you to clarify . . . the section referring to records from Grand Rapids, Mich. where it is stated there has been an "alarming, unexplained increase in deaths from heart disease during the fluoridation period."

We have in our files records and reports from the City of Grand Rapids on the dental effects of fluoridation, infant deaths and rates per 1,000 live births, deaths due to heart disease, to nephritis, and due to intracranial lesions, for quite a number of years, and these fail completely in supporting the report which you have mentioned.

CW would be making a very definite contribution toward further understanding and agreement on the values and hazards in fluoridation if this question of the Grand Rapids results can be cleared up.

WAYNE E. WHITE
Ozark-Mahoning Co.
Tulsa, Okla.

The American Dental Association reports that the apparent increase in deaths is due to a comparison of 1944 data for the city of Grand Rapids with 1948 data for the whole of Kent County, in which Grand Rapids is situated. It is also claimed that, based on more suitable statistics, there were no changes in the death rates in Grand Rapids significantly different from those for the country as a whole.—ED.

History Repeats

TO THE EDITOR: I have read your news article "Tempest in a Reservoir" . . .

The situation as you describe it is correct. I think the experience of public health authorities employing water fluoridation as a disease preventive is not unlike experiences during the time when water chlorination was beginning to be used extensively. . . .

THOMAS L. HAGAN
Chief, Div. of Dental Public Health
Federal Security Agency
Washington, D. C.

Tablet Backer

TO THE EDITOR: Your excellent article "Tempest in a Reservoir" (Feb. 14) covered the controversial fluoridation subject adequately. As a fluorine enthusiast for many years, I should like to add several salient points.

Approximately one-third of the nation's population is living in small villages and rural areas and will not benefit by fluoridation of public drinking water supplies.

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OPINION . . . . . .

the population is beyond the reach of communal fluoridation of the water supply.

Therefore other provisions for preventing dental caries in this fraction of the population should be developed, and thus two years ago I formulated a tablet containing 2 mg. of calcium fluoride (or just under 1 mg. of fluorine) which is the optimum daily dose. My CalFlur tablets were approved by the Federal Food and Drug Administration, but when I applied to the Council on Dental Therapeutics of the American Dental Association for approval, I was given the following answer: "Direct clinical evidence of the effect on caries of dietary supplements of solid synthetic fluorides is meager, and the council voted not to grant acceptance to fluoride tablets of this nature."

At the U. of Wisconsin, Dr. M. Starr Nichols, Professor of Sanitary Chemistry, made exhaustive experiments and reported that natural and artificial fluorides are identical in the mixtures of 1 p.p.m.

The A.D.A. is so committed to fluoridation that it brushes off all opposition, not only the so-called crack-pots, but the valid objectors as well. For example, Dr. Arthur B. MacWhinnie, of Seattle, Washington, says in the Jan. *Oral Hygiene*, "I was swept off my feet at the first onslaught of fluoridation in my community. I spoke for its adoption at several large meetings. It was not long, however, before questions arose in my mind, and I reversed my position. I could not deny the possible benefit of fluoridation to children without an alternative to offer. I found to my delight there were other ways of administering fluorides. I rushed to report my findings to the dental profession. I received a great shock, for the platform of the Seattle District Dental Society was denied me to speak against fluoridation. I then decided to write my report to the State Journal. Again I was stunned. My editorial presenting arguments on both sides of the question was removed at press time by the committee for fluoridation. If the profession is not qualified to discuss this question, then who is?"

In closing I should like to report that after prolonged hearings, the Delaney Committee refused to recommend that Federal legislation be enacted, and one of its members, the Hon. A. L. Miller, a physician, said, "I am convinced that the proper use of fluorides in the water or milk, or by tablet form, for children may reduce dental caries about 50 per cent."

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(Vol. 4, No. 2)

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(Vol. 4, No. 1)

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(Vol. 3, No. 4)

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(Vol. 4, No. 2)

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Spent oxide from manufactured gas can now be burned to yield sulfur dioxide. The process uses a horizontal rotary kiln, separates dust from the effluent, purifies by cooling and scrubbing, and absorbs the clean gas in a regular sulfite tower. This process is interesting pulp and paper mills as a supplementary source of sulfur.

(Vol. 3, No. 3)

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A new type of highly reactive coal is being developed in Belgium. It appears to be an excellent reinforcing agent for rubber and selective absorbent for the separation of solvents.

(Vol. 4, No. 1)

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(Vol. 3, No. 2)

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Chemical Week
BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

NEWSLETTER

Always building, never built. That terse truism has long characterized the chemical industries. And this week a roster of companies was breaking new ground:

• Spencer Chemical has lined up 400 acres near Orange, Tex. (That's the same area where Du Pont started building in 1946 and where Allied Chemical, Goodrich-Gulf and Foster-Grant have acquired sites during the past 13 months.)

• Mathieson Chemical has made a deal with American Enka—recently licensed to make nylon (*CW, Feb. 14*)—to supply the fibermaker with caprolactam. Location of the Mathieson unit: Morgantown, W. Va.

• Bakelite is putting up its first commercial size unit for fluorothene resins. Completion is scheduled for mid-year; site: South Charleston, W. Va.

• Allied Chemical and Dye's $6 million nitrophosphate plant—for which a rapid write-off certificate (*CW Newsletter, Sept. 27, '52*) was granted late last year—has started taking shape at South Point, O. Construction began quietly last month. The phosphate fertilizer will be made via a nitric-sulfuric process.

But literal ground-breaking for new plant construction is only one aspect of chemical expansion. Several significant moves in breaking new market ground also spotlight progress:

• Eaton Laboratories (Norwich, N. Y.), which has been busy clinically testing its new systemic anti-bacterial agent, Furadantin (*CW, Oct. 11*), is getting set to introduce it to general practitioners this May. The drug is the first nitrofuran derivative to prove out, is just one of a string of chemically similar synthetics Eaton now has under development.

• Synthetics have no corner on the amino acid business. A. E. Staley Mfg. Co. (Decatur, Ill.) is now producing pure grades of tyrosine and leucine from natural protein sources, is diligently probing market potentials.

• California Spray-Chemical (Richmond, Calif.) has just registered a novel fly killer. Key ingredients: lindane, 10.7%; TEPP, 4.7%. Best end use bet: control of resistant flies in dairy barns.

It's becoming a trend for pharmaceutical firms to seek a chemical parent. A few months ago (CW, July 19, '52) Squibb merged with Mathieson; and now directors of Sharp & Dohme and of Merck have hammered out the terms of a merger agreement. Before May 5 stockholders of the two companies will vote, and ratification is a predictable conclusion.

Under the agreement Sharp & Dohme's common stockholders will get 2¼ shares of Merck common for each share held. The drug firm will operate under its present name, under its present management, and as a more or less decentralized unit.

The organization chart will be changed at the top, of course. George Merck will be chairman of the combined company (Merck & Co.) and John Zinsser, new Sharp & Dohme chairman, will be vice-chairman. James Kerrigan will be president of the parent concern, and William Dempsey will continue as president of the Sharp & Dohme unit.

Of a different vein is the news from Philadelphia this week, where two formerly associated firms have had a $22-million falling-out. Houdry Process Corp. has filed a suit in the U. S. District Court there against its former major stockholder, Socony-Vacuum Oil Co., alleging willful and deliberate infringement of Houdry patents.

Houdry claims that Socony-Vacuum has persisted in selling licenses (at cut-rate prices) on Houdry-owned catalytic cracking processes. Socony-Vacuum had access to these processes since it participated in the management and financial control of Houdry for 17 years. It had the right to use the processes itself, but not, claims Houdry, to sell them to others.

With a March 1 deadline breathing down its neck, the Reconstruction Finance Corp. early this week submitted a plan to President Eisenhower for disposal of the government-owned synthetic rubber facilities. Congress would just as soon see the government get out of the rubber business, so there's a good chance for action after Eisenhower makes his recommendations (which may or may not follow the RFC proposals).

The philosophy of RFC's plan is to develop an industry pattern that will permit the free operation of competitive forces "by avoiding situations of dominance and by assuring a supply of rubber to those users who do not purchase facilities."

RFC spells out various figures on cost and value of the plants; but regardless of its accounting, it's known that industry officials privately go along with the $350-million price tag suggested by Rep. Paul Shafer, top Congressional figure on synthetic rubber.

Here are the steps the RFC outlines:

- Prospective buyers submit "indications of interest" before a specified deadline. Then the disposal agency designated by Congress would negotiate with two objectives in mind: getting fair value and providing for effective competition.
- The Attorney General and the Federal Trade Commission would check antitrust angles.
- Congress would have to okay final sales, and any unsold plants would be placed in stand-by status.
- Suggested terms on sales: 20% down, balance on a 10-year mortgage.
- The government should build up stocks before transfer of plants so that users won't be caught short if units are temporarily shut down for adjustments.

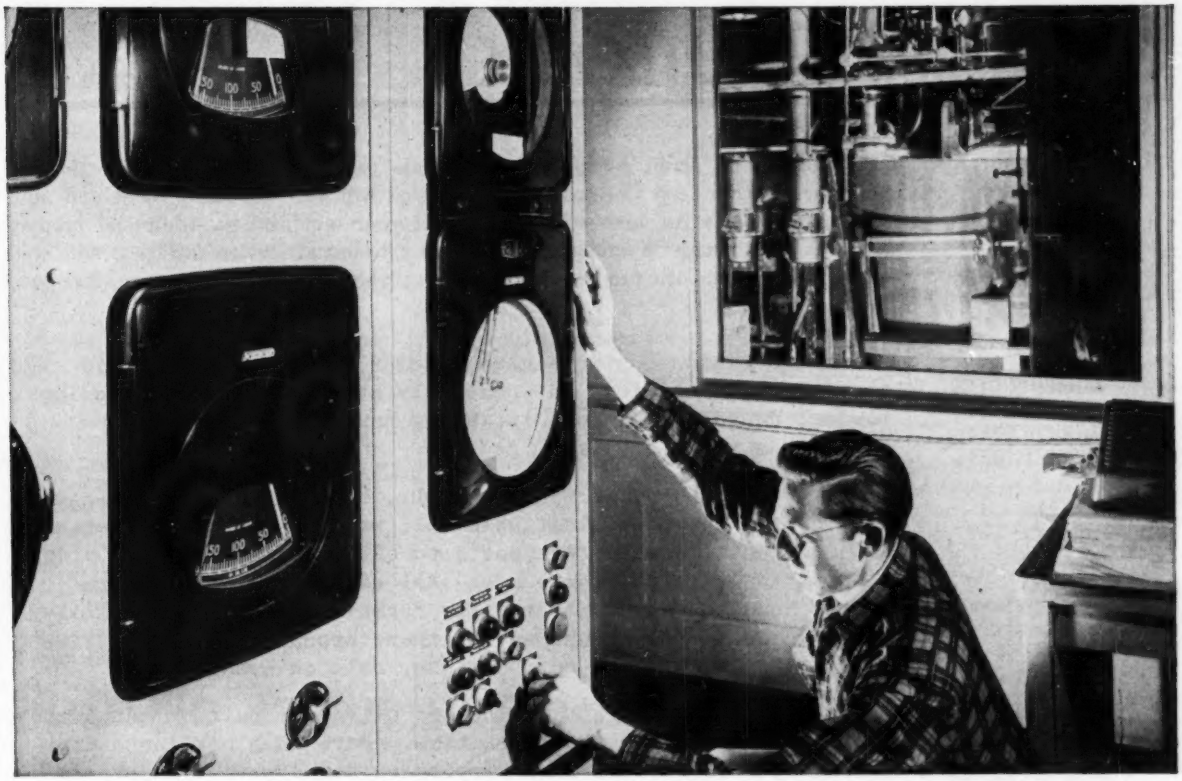
RFC is optimistic about synthetic rubber's future. It believes "private" synthetic can compete with natural—both technologically and pricewise, and that present plants won't be able to supply future demand.

One measure of the chemical industry's growth during the past 25 years came out this week as the Manufacturing Chemists' Assn. totaled up the number of companies on the New York Stock Exchange.

In 1929, chemical firms numbered only 49 (with 74 security issues); a decade later the total had risen to 63 (with 89 issues). But by last year 83 firms (with 128 separate issues) were listed. Adding significance is the fact that the total number of firms with stock on the "big board" declined from 1,419 in 1929 to 1,288 last year.

Want bigger pigs? It's not enough to give them pellets containing antibiotics, vitamins and other growth factors, say Iowa State College researchers. You should also sugar-coat the pellets, since little piglets apparently have a sweet tooth.

. . . The Editors



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GC53-2

CHEMICALS OUTLOOK

March 1953

This news bulletin about Wyandotte Chemicals products and their applications is published to help keep you posted. Perhaps you will want to route these and subsequent facts to other interested members of your organization. Additional product information, through Wyandotte research and technical service facilities, and trial quantities of Wyandotte products are always available upon request. May we serve you?

TO COMPOUNDERS OF AGRICULTURAL INSECTICIDES

Wyandotte Lindane, a pure gamma isomer, is now available in commercial quantities. A chemically stable, dry, free-flowing powder, Wyandotte Lindane is easily handled and may be formulated as a spray or dust.

Lindane, together with Wyandotte DDT, high-gamma BHC, low-gamma BHC, cotton dusts, emulsifiable oil, wetting agents, solvents and fumigants, enables Wyandotte to offer manufacturers a wider line of insecticidal compounds. All of these materials are easily handled and can be readily formulated into high quality insecticides. If you use any of these products, or would like data or technical help on their use, call on Wyandotte.

TO RUBBER MANUFACTURERS: NOW ULTRAFINE CARBONATES WHICH CAN BE DISPERSED WITHOUT SPECIAL HANDLING

Purecal* SC, Wyandotte's new coated ultrafine calcium carbonate, is now available for the first time. Here is a new carbonate giving essentially the same properties found with Wyandotte's other ultrafine carbonates, but which can be dispersed without special handling. Because of this better dispersion, lower costs and improved qualities are obtainable with Purecal SC where dispersion is a factor.

Ultrafine carbonates are much more difficult to disperse in natural than in GR-S rubbers, formerly making masterbatching essential. This is also true where the proportion of natural rubber to GR-S in the elastomer is 50% or more. However, even in 100% GR-S stocks, where the dispersion of uncoated ultrafine carbonates was acceptable, quality improvements are found with the substitution of Purecal SC.

Purecal SC gives high tensiles, high elongations, good tear resistance and good flex life, coupled with low modulus and hardness, to permit high loadings and low costs. Purecal SC retains the same true "tack" . . . not just chewing gum stickiness . . . that is obtained in 100% GR-S stocks with the uncoated ultrafine carbonates.

Purecal SC was primarily developed to improve processing . . . it makes stocks commercially practical, using only standard factory practices. Write for free copy of recently published article "Practical Compounding for Economy".

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SOIL CONDITIONERS AND AGRICULTURAL CHEMICALS • *OTHER ORGANIC AND INORGANIC CHEMICALS*

BUSINESS & INDUSTRY . . . . .

NPC's Liquid Fuel Cost Rundown

Process	Output (1,000 gal/day)	Investment ($ Million)	Ratio (Investment to Output X 1000)	Cost (Cents per gallon)
Coal Hydrogenation (normal)				
Single plant	27	533	19.7	41.4
Multi-plant	216	4,074	18.8	43.5
Coal hydrogenation (modernized)				
Single plant	27	477	17.6	36.3
Fischer-Tropsch				
Single plant, small	11	184	16.7	35.7
Single plant, large	27	380	14.1	29.4
Oil Shale				
Single plant	39.7	333	8.4	16.2
Multi-plant	201.3	1,518	7.6	14.7

Still No Profit in Shale

The synthetic liquid fuel process that comes closest to being economic today is oil from shale. It can be produced for about 14.7 to 16.2¢/gal., whereas all other processes require a gasoline price at least twice the cost of gasoline from crude oil today.

Those are the highlights of the final report, out last week, of the National Petroleum Council's two-and-one-half year, $500,000 study of the controversial question of the cost of producing synthetic fuels. The study was carried out by several committees of executives, engineers, and technicians from a cross-section of the companies in the petroleum industry.

The council came to these conclusions:

- All methods of manufacturing synthetic liquid fuels proposed by the Bureau of Mines are definitely uneconomical under present conditions.
- There is some likelihood of further reducing the cost of synthetic liquid fuels by continued research in oil shale and Fischer-Tropsch processing of coal.
- The possibility of commercial operations in oil shale warrants the continued attention of the petroleum industry.
- Coal hydrogenation, on the other hand, requires drastic improvements in existing methods to permit economic operation. Such developments are not foreseen at the present time. Because of the greater promise of the other methods, further government work on this process does not appear to be justified.

The Council's report is apt to get a far different reception under the Eisenhower administration than similar reports received from Truman's Secretary Chapman. Chapman was an out-and-out proponent of a substantial government program of testing and developing production-size plants to produce oil from shale and coal. Chapman and his Bureau of Mines were feuding with industry over validity of estimates on costs and feasibility of research plants, pilot plants, demonstration plants and production.

Secretary of Interior McKay has no special record on this controversy. But he and the rest of the Eisenhower team are looking through businessmen's eyes at almost every government program. Certainly, it's something more than a good guess to predict that the "new climate" in Washington will drastically reduce and perhaps eliminate the wrangle over government's role in the program.

A Vote for the Boss

Management men with labor union troubles—and their number is legion—are looking enviously in the direction of Ambler, Pa., where the American Chemical Paint Co. has just won, by a 6-to-1 ratio, a solid vote of confidence from its 136 production and maintenance employees.

The company started in a South Philadelphia attic in 1914 with a capital of $2,500, and has grown to the point where last year it sold $10 millions worth of agricultural and industrial chemicals in 50 countries. There's never been a strike against American Chem, and until last fall no union had even tried to organize the firm's employees.

Then the aggressive United Gas, Coke & Chemical Workers (CIO) pushed into the scene. Gas-Coke organizers canvassed the workers, passed out pamphlets, and in effect told the workers that their best bet to protect themselves from the company was to join the union.

Management remained passive through the early months of the campaign, then replied to the union's charges by simply asking the workers to judge for themselves how they had been treated. Company President Leon Cherskey reminded his employees that they had group insurance, a basic retirement plan, and a profit-sharing scheme, all of which had come without union jockeying.

Cherskey told the workers that the company was paying wages as high as, or higher than, most other companies in the business. Throughout the campaign, he made no promise other than to assure the employees that the company would continue what it calls its "progressive policy."

Last week, the National Labor Relations Board announced the results of the election. With all eligible workers voting, 115 ballots were for "no union," 18 were for Gas-Coke, and three were challenged.

Publicly, union officials declared they'd keep trying to organize the plant, but privately, they indicated they wouldn't waste more effort here.

When a group of employees trooped into Cherskey's office to congratulate him on this evidence of his men's trust, they found him in a serious mood, neither arrogant nor swaggering.

"I have no feeling of victory," Cherskey said. "Unions are all right under some conditions. They just don't belong here. I feel, as do most of our employees, that we can operate better without one."

His only explanation for the election result: the company always has tried to treat its employees "with kindness and fair play." Cherskey says the firm "is not a utopia for workers and never will be," but apparently the workers aren't seeking a utopia just yet.

Recipe for Venture

Take a material that 15 years ago was little more than a laboratory curiosity, and erect the first U.S. production unit. Then, when the material finds a possible wide-scale use as a rocket propellant, don't be distracted. Keep on looking for the less spectacular, more specialized uses. That's the Fairmount recipe.

Such a policy, despite its inherent paradox, has paid off for Fairmount Chemical, which next month will bring on stream another hydrazine unit, joining a similar one that went into operation last September.

To Fairmount's Fred Von Hessert, hydrazine, rather than being an end product, is a means to an end—that of supplying a varied line of industrial intermediates.

Such intermediates, nevertheless, are only one facet of the company's activities. It is the largest U.S. producer of selenium chemicals—a "spotty business" at best, says Von Hessert. And it also makes volume quantities of photographic sensitizers and restrainers, flavor and aromatic chemicals, diazo salts and coupling agents.

To Von Hessert, president and chief stockholder of the 15-year-old company, the present sales curve is gratifying. He estimates that sales volume is about 15 times greater than it was 10 years ago.

The Man Behind the Wheel: Von Hessert came to the U.S. in 1931, packing a brand new diploma. And though arriving near the depths of the depression, he landed a job with Diamond Alkali's Standard Chromate interests.

VON HESSERT: Profits with a paradox.

In 1938, incorporation papers for his company were filed. "To begin with" recalls Von Hessert, "I didn't want it named for me." "Chances are the name would have taken the blame if the venture hadn't succeeded." The plant was to be located on Newark's Ferry St., but the title Ferry Chemical was also rejected.

Finally, though, it was from the street's name that the Fairmount cognomen was conjured up.

Things Get Rolling: Perfume and flavor chemicals were the first products of the new concern, soon followed by metallic salts. Selenium compounds, however, were the only such materials sold in more than reagent quantities.

In 1940, Fairmount began production of hydrazine, which found a market almost immediately in the manufacture of azide detonators. Later on, this market was lost when large scale azide plants were erected by competitors—reemphasizing to Fairmount its need to stress upgrading of its products.

One nominee: semicarbazone, which is used in the purification of various steriod products, and thus gives the company an entree into still another branch of chemical manufacture.

About the only broad intermediate field that Fairmount doesn't "choose to enter" is textiles. "But we can usually gauge when the textile business is bad," reports Von Hessert, "by the amount of competition we're facing in our prime fields."

Today's Set-up: At present, the company is in business at two locations—the original Ferry St. site and a newer one further east in the Jersey meadows where only its hydrazine facilities are now located. But since there is room to expand at the new location, Von Hessert and his plant manager, Cal Kish, are tinkering with the idea of relocating several operations there.

To many outsiders, Fairmount's future would seem tied first and foremost to hydrazine per se. But in Von Hessert's mind, it's the intermediates that rate primary importance. If for example, some other firm were to put up a $30 million hydrazine plant, Fairmount likely as not would be knocking at the door seeking to buy its product for further upgrading—using its own hydrazine equipment for other operations.

In a similar vein, Von Hessert underscores his philosophy by pointing out that if the competition on some other product gets too tough, "why we'll just take up another intermediate."

COMPANIES . . . .

Switches in ownership highlighted company activity this week:

- Darling and Co. bought the Interstate Fertilizer Co. plant in Cairo, Ill. Because it is primarily a mixing plant, with no acid plant or acidulating facilities, Darling will be obliged to ship superphosphate from its E. St. Louis plant or purchase it elsewhere. Capacity: 25,000 tons/year.
- National Gypsum Co. has completed arrangements for acquisition of a second asbestos goods manufacturer within 90 days. Exchange arrangements, subject to SEC approval, will include transfer of 27,000 shares of National common stock for all the assets of Smith Asbestos Products, Inc., Millington, N. J.

Last December, National bought Asbestone Corp., New Orleans, for about $5 million in common stock.

- Continental Oil Co., Ponca, Okla., bought the Bryton Chemical Co.'s plant at Trainer, Pa. Management at Bryton will be unchanged, and Continental will sell its products under the Bryton name.
- International Glass Corp. recently purchased all the plant facilities and equipment of the Perrault Glass Fiber Corp., Newport, Ark. Full production is expected to be resumed shortly.

•

Stock issues that were subscribed include:

- Hooker Electrochemical Co.'s 97,147-share offering of common stock has been 99.2% subscribed through exercise of stockholders' rights.
- Pan American Sulphur Co.'s new capital stock offering of 499,325 shares has been 99.83% closed.

•

Aluminum Company of America's proposed location for a new aluminum plant may be due for a change.

Power problems in the Skagway area have sent Alcoa representatives into consultation to discuss alternate sites: either Cordova or the Susitna region, where hydro-electric projects are planned.

•

Shell Oil Co. has received clearance from the Washington state legislature and legal blessing from Gov. Arthur Langlie to build a $75-million oil refinery in the state.

Main snag: the state's alien land law, which previously provided that a corporation may not own land in the state if majority ownership is held by aliens.

Grafts on a Chlorine Trunk

Equipment-emphasizing Wallace & Tiernan extends its pattern of diversification, puts more weight on chemicals.

Novadel-Agene, a related publicly-owned company, consolidates Hardesty Chemical as a subsidiary.

Diversification is a word so oft-repeated in financial circles that it has become a monotonous refrain.

But though the emphasis is new and the phrase trite, the idea is one that has seen continual practice by the several types of companies as they expand.

Not only has diversification been a necessity for those companies that must look to the public for new money, but in addition, it is essential to private firms to which diversification is a means of expanding while keeping control at home.

Past weeks have brought new evidence of such a diversification by the privately-held Wallace & Tiernan properties. They have already branched from the water chlorination apparatus which provided the main stem for all operations. Already sprouted from this trunk are such product lines as fungicides, fruit and vegetable treatment machinery, baking industry machinery, lighthouse equipment, pressure instruments and process equipment.

The company's latest step is the consolidation of the profits of Hardesty Chemical Co. into those of W&T's publicly-owned affiliate, Novadel-Agene. Harchem has added plasticizers and a nylon precursor to the family which already includes tavern beer coolers, flour treatment equipment, organic peroxides and fatty acids.

Corporation Keystone: But the diversity of product lines has something of a counterpart in corporate structure. Keystone in this span is the Wallace & Tiernan Co., Inc. (Belleville, N.J.), organized 40 years ago by Martin Tiernan and Charles Wallace. It has two subsidiaries, the wholly-owned Wallace & Tiernan, Ltd., in Canada, and a similarly named British corporation.

Related, via top personnel, are Wallace & Tiernan Products, Inc., Wallace & Tiernan Products, Ltd., Wallace & Tiernan Sales Co., Electro-Rust-Proofing Corp., Thomson Machine Co., and the recently formed Wallace & Tiernan Process Co.

Both stock and personnel relationships tie Novadel-Agene to Wallace & Tiernan Co. The stock received when Novadel-Agene was formed to market flour treatment agents amounts to 41% of that now outstanding. Directors in the two companies hold an additional 3%. The balance is publicly traded.

What is now Novadel-Agene's Lucidol division was acquired at the same time that the former Novadel Corporation was merged into Novadel-Agene. Lucidol makes organic peroxides. The Richmond Manufacturing Corp., which makes flour milling machinery, is a N-A subsidiary. In 1951, it bought W. C. Hardesty Co., Inc., primarily from Binney & Smith Co. This sales affiliate of Columbian Carbon has held 51% control of Hardesty for many years, and has owned about 80% since the end of 1949, a red-ink year on the Hardesty books. (Binney & Smith will still act as a sales agent for Hardesty products, concentrating primarily on selling to rubber manufacturers, compounders and processors.)

W. C. Hardesty Co. has as wholly-owned subsidiaries the Century Stearic Acid Candle Works, W. C. Hardesty Co. of Canada, Ltd., and Twentieth Century Chemicals, Ltd. In addition, it held 51% control in Hardesty Chemical. Novadel purchased the remaining 49% from S. J. Cohen, a Harchem officer. There is no relationship between Wallace & Tiernan and Hardesty Industries, Inc., or Acme Hardesty Co. (*née* Hardesty & Co.) now operated by W. C. Hardesty.

Chemical Development: Most recent acquisitions have been chiefly chemical. Acquisitions, though, can't give a true picture of the increasing part that chemical production is playing.

Wallace & Tiernan Products, for example, had a few products in the pharmaceutical field before the war; during investigational work on fungicides, it came up with undecylenic acid and salts, which comprise the best accepted athlete's foot treatment. At first, it purchased the acid, but later began to manufacture it from castor oil.* A newer product is tetraglycine hydroperiodide (*CW, July 26, '52*), a water treatment chemical that further extends the W&T line. Trichloromelamine extends company interests in fruit and vegetable treatment.

In a similar manner, Novadel's Lucidol peroxides complement other Wallace & Tiernan bleaching materials and processing products.

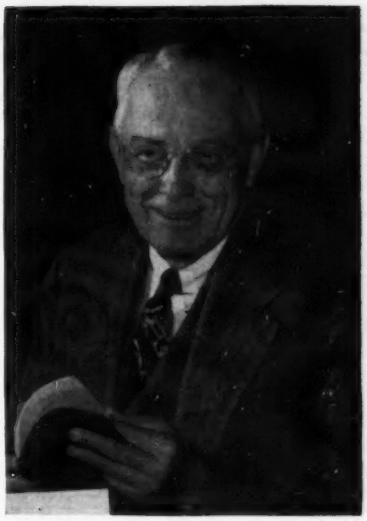
The purchase of the Hardesty companies represents something of a change since specific product interrelationships are by no means obvious. Undoubtedly, such relationships will develop in the next few years. Too, the thinking behind the entry into a field as competitive, and perhaps as cutthroat, as fatty acids has an interesting facet.

And while the number of companies in the field is relatively large, the number of really big companies concentrating on fatty acids is small. This would give a company of the size and with the repute of Hardesty a good competitive position. For Harchem, the plasticizer field is one in which a good deal of growth is anticipated, though competition is proportionally tougher. Harchem, as a primary producer of dibasic fatty acids, has a good position in an only partially explored field.

The whole fatty acid spectrum, however, is in a flux because of the dislocated tallow market and because of newly-commercialized splitting techniques.

But judging from the past, Mike Tiernan and such top-level assistants as Fred Merckel, Bill Orchard and Jerry Peet will soon have the new corporate scion well tied to the sturdy parent stock.

This would bode well for the health of the new graft.



MARTIN TIERNAN: Healthy growth for a new kind of sprout.

* Splitting castor to undecylenic acid and heptaldehyde is a curious tie to Hardesty Chemical, which splits it to sebacic acid and capryl alcohol.

Community Relations Survey: Plaints and Counterplaints

Like the weather, results of CW's current survey of the community relations problems of plant managers were not altogether predictable. On questions concerning sore points of contention with the town and the community's reaction to honest cooperation, answers ran true to form. But on methods employed by managers themselves to solve such problems, local efforts were surprisingly hamstrung by home office policies. And most constructive of all were the many ingenious methods of promoting goodwill—from playground instruction to mass hospital blood donations.

Conditions set down by the survey were simple. One hundred plants were chosen in all sections of the country in towns with population of under 50,000, when the plant was but a small section of a large corporate set-up. Opinions were anonymous and gave CW almost a 50% return on its mailing list.

What the Figures Showed: A series of 10 questions was asked, breaking down roughly into four categories: what problems are most frequent, how they are handled, community reaction resulting, and positive propaganda as a prophylactic measure.

• Of those plants surveyed, 54% reported a majority of their employees living as local residents. Average number approached 74% of total employees. Since, of course, a denizen who is also a worker in the plant has a set impression of the company and its organization, good public relations in these cases start at home.

Good impressions set up among its employees by management of plants in small towns pay handsome dividends. The news travels quicker, and with greater effect. Importance of working conditions in a single plant in a small community is magnified in importance.

• Chief complaints encountered by plant managers were predictable: 41% have smokestack effluence problems; 24% hear constant cries of stream pollution; 21% toss in their own gripe of undue time demands by community organizations; and 5% think the town inflicts unfair demands upon the company. Others range from resentment against agitation in the community by small minority groups to bring in liquor and gambling, to noise complaints; and from housing bottlenecks to tax problems.

• Response in answer to the query, "Is your dealing with these problems slowed down by home office clearance?" proved revealing. A full 37% of all plant managers felt that their effective treatment of community affairs was hampered by home management. Reason: the element of time expended needlessly while trouble came to a head, and inability of top management to understand the particular aspects of the situation peculiar to the town itself.

". . . . odor complaints . . . the phones burn up."

• "Ultimate" policy in handling community relations problems fell back into the lap of the plant manager himself just about 82% of the time. Therefore, although in almost 20% of the plants surveyed the manager was forced to relay all such difficulties to his company's home office, the routine was window-dressing. What he ultimately did about the situation was delayed—not altered.

• Means of anticipating trouble spots were numerous and varied. Local contacts in civic groups, the newspapers, plant planning committees and the grapevine paid off most frequently. Some managers admitted to an ostrich attitude, however, and simply refuse to "borrow trouble."

• The direction community resentment took over any particular issue was not especially revealing. A quarter of the time it is turned on the plant locally; 71% of the time, at the company as a whole; and 4%, at industry in general.

• The plant manager's means of communication asking for a relay of instructions as to how he should move proved provocative in their variety. Only 3% of the time did he have a central community relations department set up to handle the case. His recourse might be direct contact by phone, through his monthly report on operations, through the works manager, to an advisory council of which he was a member, or by direct correspondence with his immediate superiors. Lack of organization in handling community problems often bothered him considerably; and lack of prestige within the town itself, caused by such "beating around the bush," was a thorn in his side.

• Variety of interests in community projects were breath-taking in their very breadth. Service clubs were supported by 85% of all plant managers; the Red Cross and Community Chest were aided by 80%; and 60% made tangible contributions to town athletic leagues. Other participation: Citizens' Improvement Committee, Chamber of Commerce, YMCA, public education committees, TB Association, Boy Scouts, Rotary Clubs, the Cancer Drive, Salvation Army and Kiwanis Clubs. More unusual: mass donations to local hospital blood bank, annual picnics for school-children in coordination with plant visits, and week-end outings for orphanages.

• The effect of such projects, reflecting sincere thought on the subject by plant managers everywhere, was considered beneficial 94% of the time. It appeared to 49% of the managers in letters of thanks from townspeople, to 46% in commendations, and to 31% in honorary positions.

What the Comments Implied: Above and beyond actual percentage figures, CW's survey revealed:

On the lack of proper appreciation "for its many services to the community," some plant managers were openly bitter. They obviously felt that the more they did to be a "better neighbor", the less good-will they received in return.

Others, in direct opposition, pointed with pride to the outstanding cooperation of the local chamber of commerce to grease their path in obtaining land leases or water permits. They voiced gratitude and even amazement at specific instances in which local residents had "gone more than half-way" to overcome contention.

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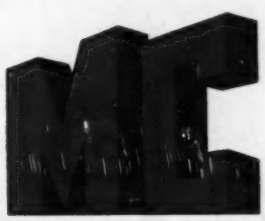
For full information, for samples, or for fast, dependable supply of "dry" or regular bromine, contact Michigan Chemical Corporation at once.



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B&I . . . . . .

sponses was a faith in the ability of local management to solve its own problems "unencumbered" by home office red-tape, and a willingness to try new ways to make future town relations serene.

LABOR . . . . . .

New Horizons: Unionization is extending into fields that previously were thought to be "out of bounds" for the organizers.

• One of the nation's oldest chemical companies—never a giant but always respected—is negotiating a contract with District 50 of the United Mine Workers after its employees voted 29 to 15 in favor of joining the union. Founded in 1885, the Henry Bower Chemical Manufacturing Co., Philadelphia, has never before made a union agreement. The CIO Chemical Workers tried to organize the plant in 1937, but management considered the union's demands unreasonable, and after a six-week strike the employees returned to work. Since then, several unions have made futile attempts to line up Bower employees. President Henry Bower, grandson of the founder says that joining a union is just the trend of the day.

• More and more professional and scientific employees are thinking about unionism. A Los Angeles engineer writes:

"Many [engineers], as individuals, have given up hope of establishing constructive communications with their managements, and have joined unions of one form or another. The growth of union organization among engineers continues apace, and strangely enough, only because the engineer feels that management has become an impersonal, dehumanized entity, capable of transmitting communications but incapable of receiving them."

And the editor of a New York engineering journal declares:

"For innumerable reasons it is essential for engineers to be organized in groups that will be mindful of their economic status and will represent them on other than professional matters. It is inevitable that if this is not done we will see professional labor organizers who have no professional engineering interests take the leadership, and through the well-known tactics of such groups, force upon the employed engineers a union organization of the type that might well be distasteful, unprofessional, and in the end, unprofitable."

•

Detergent Workers Strike: Another work stoppage was in full stride

last week at a Louisiana plant making detergents and petroleum additives.

• About 125 employees of Oronite Chemical at Oak Point are on strike for restrictions on transfer of workers between jobs and for a 5% wage increase. The strikers, members of Gas-Coke local 504, had worked one month on an extension of their expired contract. Plant Manager T. I. Clausen says the one demand is a form of "featherbedding," and that the workers received a 4½% wage increase just before the strike.

• In the dispute between the ICWU and Jefferson Island Salt Co. at New Iberia, La., a hearing was under way in the local courthouse on the union's charge that the company broke the contract between them. The company's lawyers sought to introduce evidence about violence attributed to members of the striking union, but Judge James D. Simon ruled that such testimony belonged in criminal, not in civil, court.

•

Labor Tension: Two new instances of strained labor relations have turned up in the news:

• A strike has been authorized by the 30,000 employees of Goodyear's 10 rubber plants, but work continues on a day-to-day basis as negotiations proceed at Dayton, Ohio. The contract between Goodyear and United Rubber Workers (CIO) expired recently.

• A manufacturer of chemicals, pharmaceuticals and weed killers has been told by an NLRB trial examiner that the company should drop its rules about smoking privileges, payment for time lost, and personal punching of time clocks. The examiner recommended dismissal of allegations that the company threatened to close its plant if the employees chose an AFL union to represent them.

•

Soap Strike Ends: Of the four strikes settled this week, the one with the longest history was that waged at a West Coast soap factory.

• After eight months on the picket lines, some 500 members of the International Longshoremen & Warehousemen's Union have returned to work at Colgate-Palmolive-Peet's Berkeley, Calif., plant. Settlement terms included a 5¢/hour wage increase, bringing minimum hourly wages to $1.47½ for men and $1.58½ for women. ILWU is headed by Harry Bridges, who has been convicted of perjury for testifying that he was not a Communist.

• A six-week strike ended in Philadelphia with ICWU members accepting a 9¢/hour pay rise offered by Baugh & Sons Co. Also included:

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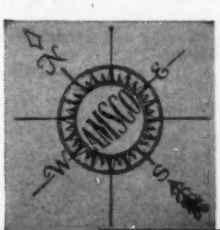

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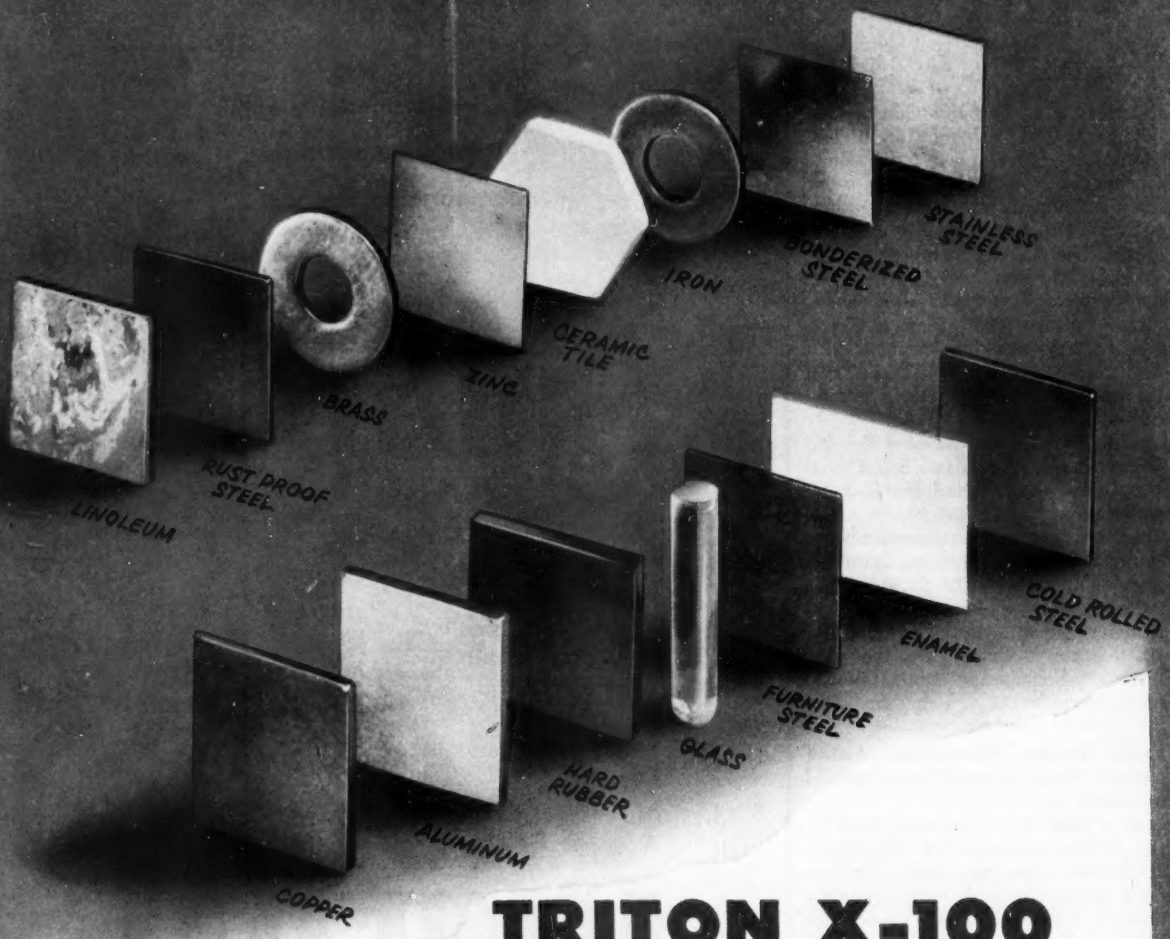

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three-week vacations for employees with 15 years' service.

• They lost an estimated $500,000 in wages during their 25-day strike, but the 1,000 employees in Firestone's plant at Des Moines, Iowa, appeared satisfied with their new 10¢/hour wage boost and rules on leaves of absence and seniority rights.

• A two-year contract with a one-year wage reopener has terminated a six-day strike by ICWU against Dewey & Almy at Cambridge, Mass. Wage increases range from 4¢ to 8¢/hour, meal allowances are raised, and the medical insurance plan has been liberalized.

• Construction work is under way again at the atomic plant in Joppa, Ill., after about 3,500 AFL workers were idled 21 days by a jurisdictional strike staged by some 200 millwrights. Their dispute has been referred to AFL headquarters in Washington.

LEGAL . . . . . .

Fighting on Four Fronts: This week, Du Pont's lawyers are keeping their eyes on developments in four antitrust cases.

• At Chicago, 83-year-old Pierre S. du Pont and 76-year-old Irenee du Pont took the witness stand to explain how their company came to buy $25 millions' worth of General Motors stock in 1917, when Pierre was president of the company and Irenee headed the firm's reconversion and expansion movement. They said the GM stock was purchased simply as a good investment of surplus cash, not as an attempt to create a controlled market for Fabrikoid, Pyralin, paint and other Du Pont products.

• At Wilmington, Del., Federal District Judge Paul Leahy is working out his decision in the case in which the Justice Department has accused Du Pont of forming a cellophane monopoly in violation of the Sherman Antitrust Act.

• At Washington, the Justice Department is studying the proposals made by Du Pont and Imperial Chemical Industries, Ltd., for ending their joint control of Canadian Industries Ltd., Duperial-Argentina and Duperial-Brazil. The Justice Department has until March 31 to suggest changes in the proposal.

• At New York, Judge John Knox is considering recent arguments on a motion to put the "brake fluid" case back on the court calendar and to assign a trial judge. This case, aimed at brake fluid marketing practices of Du Pont, Bendix and other companies, was filed more than five years ago and hasn't come to trial. At one time, it appeared that the parties would be able to work out a consent judgment out of court, but nothing came of this idea, so now the Justice Department is pressing for action.

•

And Still Another: On top of all those antitrust suits, Du Pont now faces a $62,000 civil suit by a workman at the ordnance plant operated by Du Pont at Charlestown, Ind., for the Government. The workman, Benjamin Nelson, was not employed by Du Pont at the time of the accident last October, but he accuses the company of negligence in connection with maintenance of a tank.

•

Financial Extremes: Filed in New York last week were two civil suits, both related to the chemical and petrochemical industries, both filed in the same court on the same day, but contrasting sharply in amount of money asked.

• A New York lawyer who was trying to do business with Premier Mossadegh's nationalized oil industry in Iran sued the Anglo-Iranian Oil Co. and three individuals, demanding $12 million. The plaintiff, Robert V. Rafter, claimed that they conspired to spike his efforts to round up tanker ships to sell or lease to Mossadegh's National Iranian Oil Co., and that their maneuvers were in restraint of international trade, in violation of the antitrust law. Twenty-four hours after filing the complaint, Rafter quashed it with a voluntary dismissal.

• At the opposite end of the scale in damages demanded, Allied Chemical & Dye sued the Railway Express Agency and the U.S. Commodity Credit Corporation for $687.50. Allied says CCC has refused to pay for a 50-lb. lot of FD&C blue No. 1 coal-tar dye, which Allied asserts that it shipped via Railway Express under a contract for purchase of at least 2,000 lbs. of that dye at $13.75/lb. Railway Express insists it delivered the merchandise, but the Department of Agriculture claims the dye wasn't received.

•

Drug Definition: Liggett & Myers Tobacco Co., maker of Chesterfield cigarettes, has answered an FTC complaint with a general denial. FTC is taking exception to advertising statements that Chesterfields are "milder" and "cooler smoking." Pending its own hearing, the commission wants the courts to stop such advertising claims. In that action, FTC holds that tobacco is a drug, that it's recognized as such in the Official Homoeopathic Pharmacopoeia.

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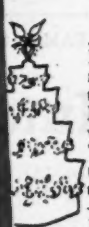

in the oven

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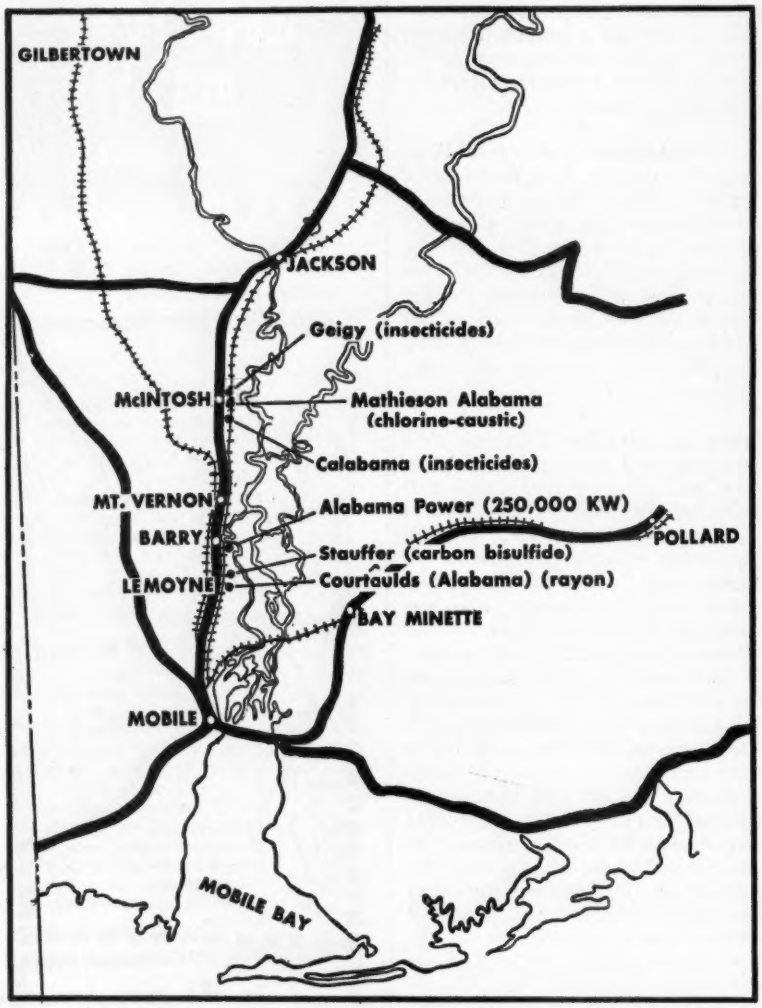


SOUTHERN ALABAMA: Changing scene along the Mobile.

From McIntosh to Mobile

Five new chemical plants along the Mobile River mark Southern Alabama as a booming chemical area.

Center of the new industry is Mathieson's chlor-alkali plant at McIntosh, supplying Geigy and Calabama with chlorine for insecticides, Courtaulds with caustic for rayon.

Other advantages of the area: plenty of power; good water, rail and road transportation; temperate climate; abundance of water; availability of coal, natural gas, pulpwood; many chemicals-consuming industries.

McIntosh, Alabama is a small station on the Louisville & Nashville Railroad about 45 miles north of Mobile. There are several saw mills along the railway; one is abandoned and has been partially dismantled, another has sagging roofs that deny prosperity.

To the east lie the Mobile and Tensaw rivers, so interlocked with connecting channels it is difficult to tell which is which. This is a many-miles wide stretch of swamps and streams; Alabama sportsmen say it's a great game area.

At one or another of the country crossroads in the "town," there are a few stores, also a filling station or two.

McIntosh's population used to be 400, most of whom were engaged in farming and cutting and shipping pulpwood for the Mobile paper mills. Log trucks move along the nearby roads, and sidings in the area are lined with piles of pulp logs.

But things have been happening to McIntosh over the past two years that are beginning to change the rural character of the countryside somewhat. Chemical companies, attracted by the manufacturing advantages of the area, have moved in, cleared sites for big plants. And within the last few months, five new plants along the river from McIntosh down toward Mobile have gone into partial or complete operation.

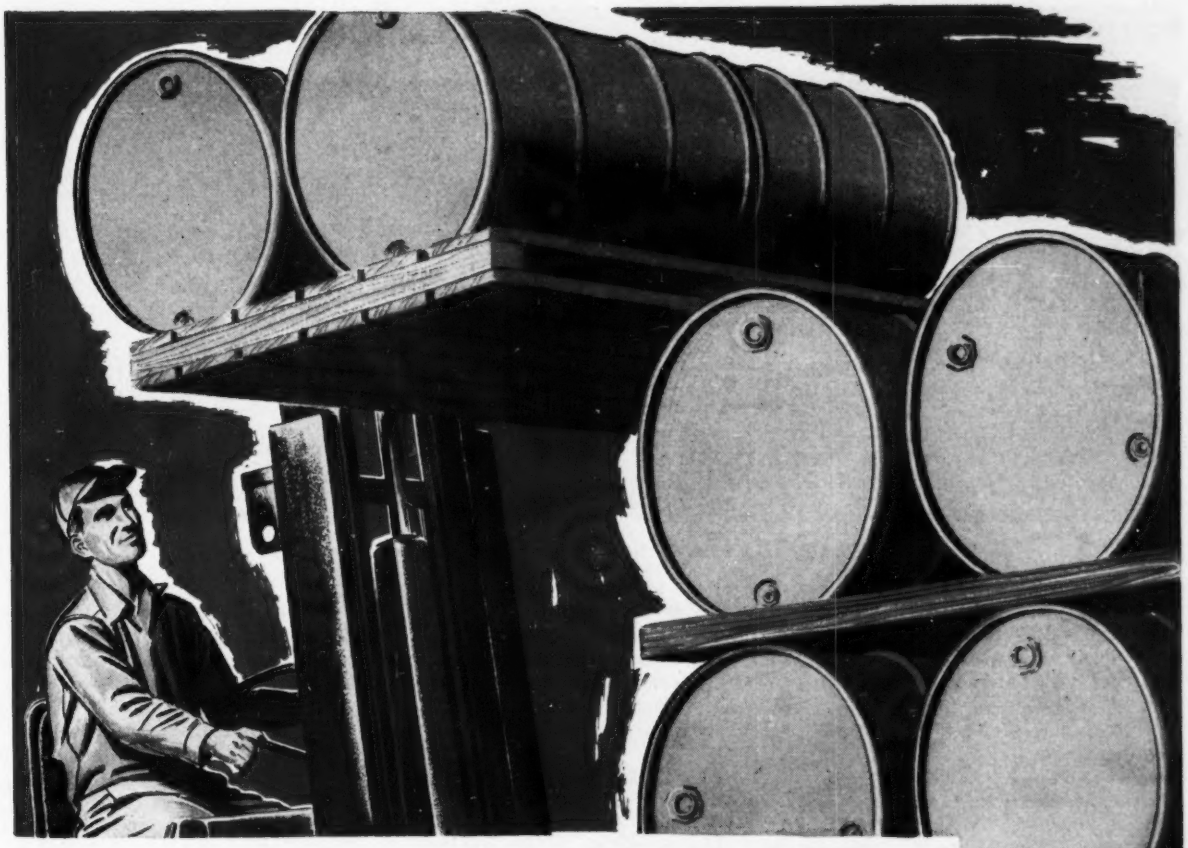
Based on Salt: Keystone of the current chemical building boom is a large recently-discovered salt dome that lies under McIntosh. Mathieson Alabama Chemical Corp., a wholly-owned subsidiary of Mathieson Chemical, began building a $10 million alkali plant there in 1951, brought it on stream late last summer. The plant, power for which is supplied by Alabama Power Co., uses the Mathieson mercury cell, has an estimated capacity of 100 tons of chlorine a day.

In addition to the new industries around McIntosh, major paper manufacturers there will buy much of their caustic and chlorine from Mathieson. Consumers within 200 miles, in fact, when running at capacity, could take the plant's whole output.

Availability of chlorine in the area (Mathieson's is the first private commercial chlorine and alkali plant in the deep South, east of the Mississippi) is the main reason the two insecticide plants have also located there. One, Geigy's BHC and DDT plant, gives that company, a well-known insecticide manufacturer, a basic position in these products. The unit is just going into operation.

The other, a DDT plant of Calabama Chemical, is still abuilding. B. H. Wilcoxon, vice-president, who has been keeping his eye on construction as well as running operations at Calabama's DDT plant at Redstone Arsenal, Huntsville, Ala., expects the plant to start turning out material any day, with the end of the year as a target completion date. Although this plant is farther from domestic markets than the company's other location, he points expectantly to overseas markets that are readily accessible from Mobile, a fast-growing port.

Calabama will be supplying formulators with basic insecticide concentrates; Geigy's production will go to its



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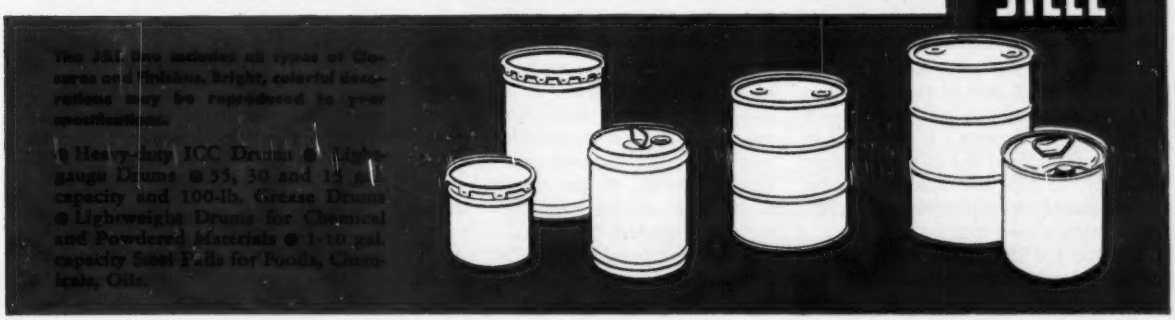
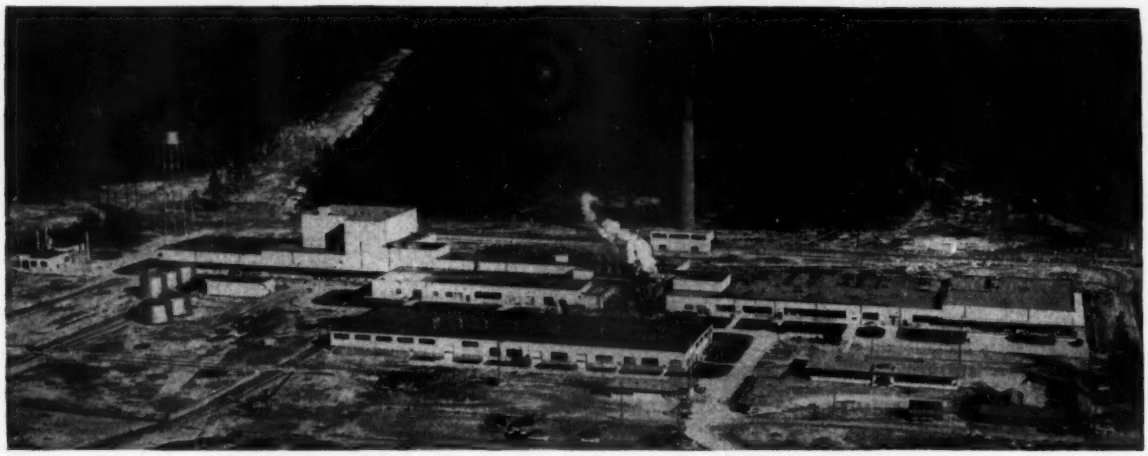




COURTAULDS RAYON PLANT: Industry moves in on sportsmen's paradise.

own mixing plants. Investment in the former's plant will be about $500,000. Geigy declines to reveal how much its plant has cost, but it is estimated at over $1 million.

Though the shortage of housing gave a little trouble, availability of a good class of labor added to the desirability of McIntosh as a plant site. Most of the young men in the area are eager to get jobs in one or another of the plants, most have high school educations and are "unusually intelligent," one plant manager avers. And Mathieson, for one, solved the housing problem for its people by building homes for them in the vicinity of the plant.

Power Aplenty: About 15 miles south of McIntosh at Barry, also along the river, Alabama Power Co. is building a $30 million steam-electric generating plant with an initial capacity of 250,000 kw. It is designed for an ultimate capacity of one million kw. When this plant is completed, the total generating capacity of the Mobile area will be tripled.

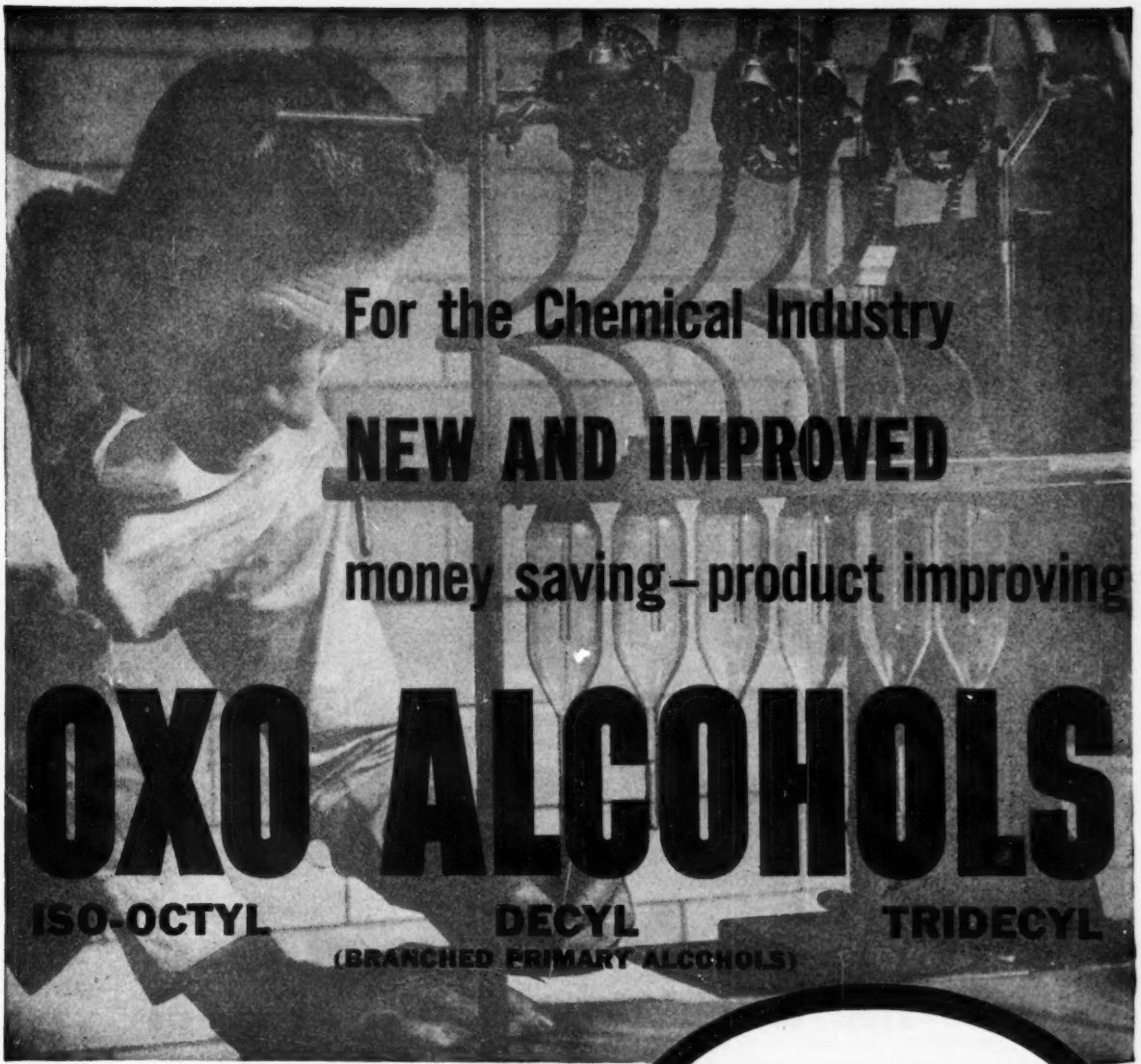
Alabama Power was instrumental in bringing Courtaulds, the British rayon producer, to the area, actually selling it the 550-acre site, located three miles south of the Barry plant, on which Courtaulds (Alabama) has constructed a plant costing an estimated $25 million. The plant at LeMoyne (recently named in honor of the LeMoyne brothers, one of whom founded Mobile and all of whom were active in its early settlement) is designed to produce 50 million lbs. of rayon staple annually. It has just started turning out material, is expected to hit full stride within two months.

Caustic for this operation is being supplied by Mathieson. Its carbon bisulfide requirements come from the plant Stauffer Chemical built in the neighborhood. This unit, which cost some $1-2 million, went on stream in December. Courtaulds takes virtually all of the output except for occasional accommodations to a variety of small users.

Sulfuric acid for the rayon plant is currently being shipped from Baton Rouge, but there is a good possibility that a sulfuric acid plant may be built at LeMoyne in the future. It is a to-be-expected development, and would be a logical move for Stauffer (through Consolidated Chemical Industries).

Lots of Plusses: An important factor in Courtaulds' and Stauffers' locating at LeMoyne was the extension of United Gas Pipe Line Co.'s natural gas pipeline from Mobile to the new site. There were many other considerations, however, that induced Courtaulds, which surveyed the entire Southeast, to choose the spot it did, and Hans Schmelzer, its director of engineering operations, recently reviewed them:

- Climate: The area seldom experiences even a light frost. Foundations can be shallow, walls and roofs lighter in design, and space and process heating can be cut at least 30% compared with requirements in the industrial North.
- Surface Water: The Mobile River, with a minimum daily flow of 4 billion gal.; maximum of 50 billion gal., offers almost unlimited process water supply and an excellent opportunity for discharge of treated plant waste. Runoffs of the nearby water shed offer another excellent water supply, if needed.
- Underground Water: Supply is plentiful and excellent. Water in the upper strata requires hardly any treatment for process operations. Water from lower strata (over 900 ft. deep) is practically unlimited, but has high chloride content; it can, however, be used in many processes. Drilling is easy through the alluvium deposits.
- Electricity: The grid system of Alabama Power and interconnection with other companies assures the uninterrupted power supply needed for the plant. Cost of power is "tolerant . . . comparable with other regions on this continent."
- Natural Gas: United Gas supplies natural gas with heat value of 1050 B.T.U. per cu. ft. from its sources in Louisiana. A volume of 170 million cu. ft. should ultimately come to the area at price competitive with coal or oil.
- Transportation: The area is served by four railroad systems operating in eight directions, and the local switching railroad of the Alabama State Docks. There is a good highway system, and various airlines connect Mobile with every city of importance. The site is satisfactory from the standpoint of water transportation: freight can be barged in and out of the Port of Mobile and up the Mobile River, and the Warrior-Tombigbee river system (north of McIntosh) will probably be further improved. (There's a minimum depth of 8 ft. for year-round navigation between Mobile and Birmingham, a 420-mile stretch, and the Army Engineers' Office in Mobile is advocating deepening the river channel up as far as Jackson, so ocean freighters can bring supplies up without transhipment at Mobile.)
- Fuel: Coal in unlimited supply from Birmingham district can be brought to Mobile at low all-water or rail rates. Petroleum products come in by tanker from Texas and Mexico, and



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B&I . . . . . .

oil is being produced in Alabama and Mississippi fields near Mobile.

• Labor: There is a healthy labor pool, not only in Mobile itself, but in all the little communities in the area. Very few cases of absenteeism were registered, and not a single case of serious misunderstanding between labor and construction management occurred during the building of the plant.

Things to Come: Those particularly interested in Alabama's industrial progress—like Alabama Power and the Mobile Chamber of Commerce—are naturally inclined to agree with Courtaulds' Schmelzer that you can't go wrong on the Mobile-Bay Minette area. The more than $60 million in power and chemical plants going in along the Mobile supports that contention. And McIntosh, which now boasts a population of 4,000, expects to hit 10,000 in the next few years.

Looking ahead, those sold on Mobile say these are some of the future developments in the cards for the area:

• Petrochemicals: Enough oil may be found in the area for petrochemicals to have a place before long. Oil production is moving eastward into Alabama; the Pollard field is proving prolific and profitable, and the South Carlton field, near McIntosh, is growing slowly.

• Fuel: The low cost of transporting coal by river from the Warrior field (near Birmingham) will become increasingly important, since natural gas may eventually be confined to domestic use. Then industry will rely on coal and oil.

• Ammonia: There's no ammonia plant in Florida, Georgia or South Alabama, and farmers are using increasing amounts of synthetic nitrogen fertilizers. An ammonia, ammonium nitrate or urea plant would be a good possibility for the area.

• Pulp and paper: A plant to work up by-products of the pulp and paper industry would go well in the area, perhaps at Bay Minette. There's also room for one more large paper mill on the river, possibly above Jackson. Hardwood as well as pine is being used for dissolving pulp, and the district has plenty of that.

FOREIGN . . . . . .

Rare Earth Minerals/India: A government-owned rare earth plant has been built in Alwaye, Travancore Cochin, to process 1,500 tons/year of monazite sand. Technical assistance was supplied by a French concern—Société des Produits Chimiques des Terres Rares. Main products: rare earth chlorides and carbonates. By-

News about

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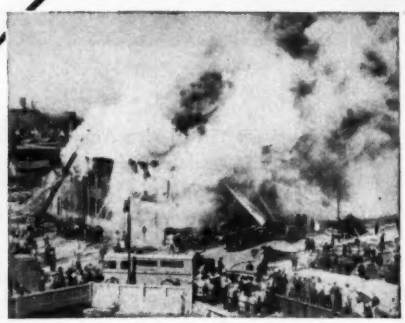


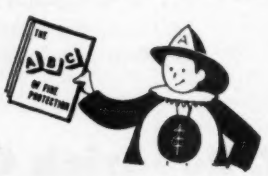
PROFIT and LOSS!

This scene of a chemical plant going up in smoke and flames is repeated scores of times daily throughout the country. Newspapers referred to this one as a "half million dollar blaze." But, they were only talking about the building and its contents. They didn't refer to losses in terms of out-of-service time, lost customers, inflated costs of rebuilding, destroyed records, vanishing profits. No, those losses are intangible—yet, just as real, just as eminent as the physical cost of fire destruction.

"Automatic" Sprinkler 10 Point Fire Protection is an absolute safeguard against fire loss, tangible and intangible. It's a profit making service that saves you money whether you have a fire or not . . . saves your business if you do!

Get The Facts: Write for informative 36-page booklet, "The ABC of Fire Protection." It's free!

"Automatic" Sprinkler



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OFFICES IN PRINCIPAL CITIES OF NORTH AND SOUTH AMERICA

products include thorium nitrate and uranium compounds.

•

Fertilizer/Colombia: A new company, expected to produce enough ammonia, nitrogen fertilizers and nitric acid to fulfill the country's needs, has been formed in Colombia by the Instituto de Formento Industrial.

Its name: Compania Colombiana de Fertilizantes. Location: Barrancarbermeja, near the main oil field and refinery of the Empresa Colombiana de Petróleos.

•

Solvents/France: France's new petroleum-based solvents plant at Berre, near Marseilles, was officially opened on Jan. 29. Annual production is said to approximate 7,500 tons of acetone and mixed solvents, will enable France to save as much as $700,000 annually in foreign currency.

Raw material is propylene, obtained from the nearby refinery of Shell-Berre.

Owned jointly by Shell Pertoleum Co. and the Société-Gobain, the plant was begun in July, 1951, and was completed last November when the first installations came on stream.

•

Sulfuric Acid/Australia: Work is to begin shortly at Port Adelaide, South Australia, on what is claimed to be the largest sulfuric acid plant in the world. Built by Simon Carves Pty., Ltd., the plant will cost around A£2 million, will have a capacity to produce 100,000 tons of acid a year, or enough for 300,000 tons of superphosphates. Raw material: pyrites.

•

Nitrogen/Finland: Finland's self-sufficiency in producing fertilizers was significantly strengthened with the completion of the Typpi Oy, in Oula.

Annual production of nitrogen will be 16,000 tons—enough to supply approximately one-third of the country's entire fertilizer needs.

EXPANSION . . .

Phenol: Jefferson Chemical Co., Inc. has opened up a new general-purpose chemical process unit at Port Neches, Texas.

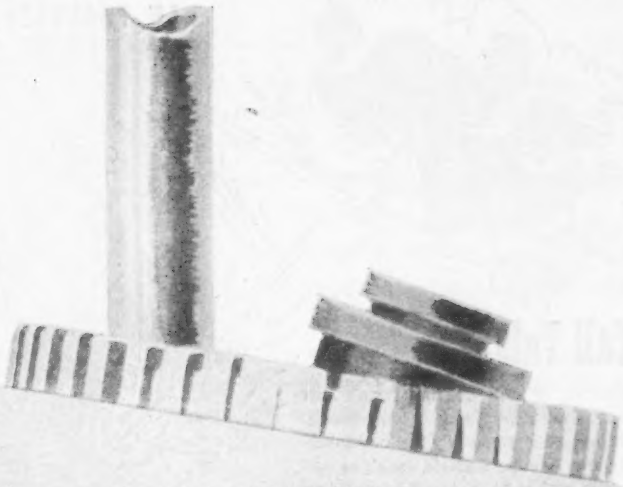
Nonyl phenol is the initial product, and commercial quantities are ready for market.

•

Paper: Valite Corp., sister company of Valentine Sugar Co., New Orleans, and Lockport, La., has applied for a certificate of necessity to construct a pulp and paper mill in the Lockport area near Houma.

The new firm, to be known as Valentine Pulp and Paper Co., will be

Here's why— here's how



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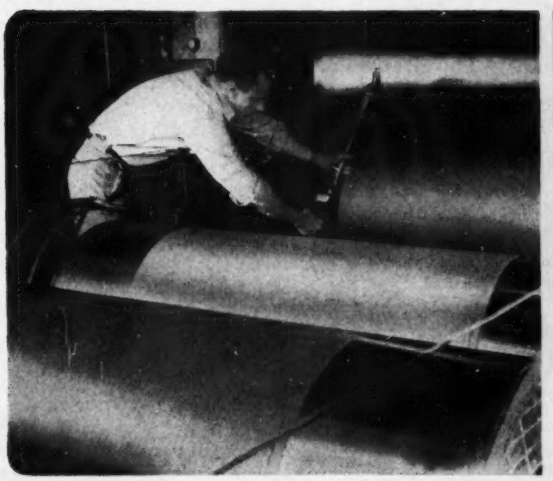

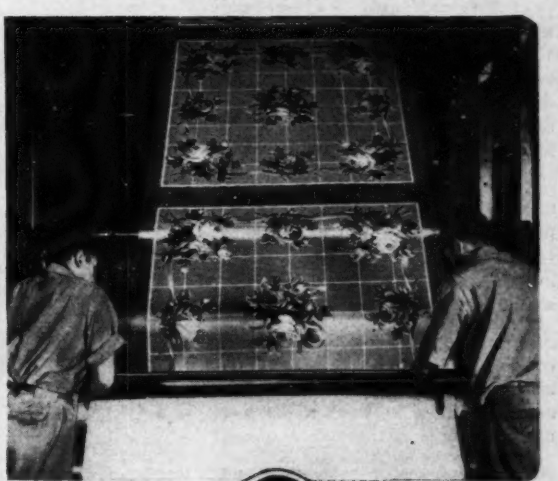

Photo Left: Calendering thin, flexible film by squeezing PLIOVIC resin—with coloring and modifying chemicals added—between big, heated, steel rolls. Photo Right: Simultaneously printing durable PLIOVIC with a lastingly beautiful pattern in four colors using special inks. Photos courtesy Harte & Co., Inc.—Manufacturers of famous Watasea Vinylfilm.

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DOW CORNING SILICONE NEWS
NEW FRONTIER EDITION
ELEVENTH OF A SERIES

Tall Tale

Speaking of stuff that heat won't hurt recalls how Davy Crockett cured hisself. He knowed it weren't right to be hankering after another shemale, long's he was legally wed to Sally Ann Thunder Ann Whirlwind Crockett. So he sets out one stormy night to purge his heart of wishful thinkin'. Soon's he sees a full grown streak of lightning scorching through the sky he opens his mouth, blinks his eyes and swallows that thunderbolt whole. Cleansed his heart but his innards got so hot that for a month afterward he ate his vittles raw and cooked 'em on the way down.

to Fabulous Fact

Just as fantastic to design engineers or maintenance men is the fabulous fact that paints are now being made to withstand temperatures in the range of 350° to 1000°F. People have tried for generations to make protective coatings less brittle than porcelain, that would keep hot metal surfaces from rusting away. But paints with such stability had to wait until Dow Corning invented silicone resins.

The stability of these semi-inorganic paint resins is proved on thousands of space heaters, jet engine parts, red hot mufflers, stoves, ovens, power house stacks and process equipment.

And, in the near future, modified silicones will be used in large quantities to make paints, varnishes and enamels that are many times as weatherproof and colorfast as the best finishes now available.

For more information about these and the many other silicone products that help to keep democracy strong, write for that popular booklet called "What's a Silicone?" Simply address your request to Department BR-2.

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In England: Midland Silicones Ltd., London In Canada: Fiberglas Canada Ltd., Toronto

the first mill to make paper from bagasse.

Production goal: 17,250 tons of finished paper annually. Cost: over $2.6 million.

Newsprint will be a principal product slated for initial sale late this year.

•

Tungsten: Minerals Engineering Co., Grand Junction, Colo., has completed plans for a tungsten refinery at Salt Lake City to be built at a cost of $700,000.

Initially the refinery will reduce some 30,000 tons of tungsten concentrates owned by Eimco Corp., Salt Lake City.

Minerals Engineering is reported seeking aid from the RFC in setting up its new plant.

•

Pentaerythritol: Delaware Chemicals, Inc. has approved the necessary expenditures to double its production of pentaerythritol. Management has also given the o.k. for additional facilities to boost recovery of various by-products.

The complete expansion program will cost around $1 million, will be carried out at a new plant to be built in northern New Jersey, close to the metropolitan industrial area. Funds will be obtained from an anticipated increase in the company's stock issue.

•

Dyestuffs: National Aniline Division of Allied Chemical & Dye Corp. has started construction on a $1.2 million building at its Buffalo plant for manufacture of intermediates used in making dyestuffs. The building is the fourth erected for dyestuffs manufacturing in recent years.

The new unit will be completed late this year.

•

Film: Plans for the erection of a $3 million plant at Atlanta, Ga., have been completed by Eastman Kodak Co. Its purpose: a distribution center and processing plant.

•

Gas: Tennessee Gas Transmission Co., Houston, plans to spend $91,718,000 on new facilities to carry additional Texas and Louisiana natural gas to New York and Canada. Application for a permit has been filed with the Federal Power Commission.

Exclusive Circle

No new members are in the exclusive circle of chemical companies honored with "certificates of management excellence for 1952"; the group consists of 15 companies that were first selected in 1950 and two firms that joined the elite flock in 1951.

Criteria for selection, according to

for in or out bulk liquid storage

In 5 great markets General American offers you complete bulk liquid storage terminal facilities with no capital investment on your part.

You use modern facilities, pipelines, manifolds, blending equipment.

You have complete privacy.

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New Orleans, one of the largest southern ports in America, handles via ocean-borne tanker traffic 250.1 million lb. of bulk liquids every month.

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for dependability, see GENERAL AMERICAN

5 TANK STORAGE TERMINALS

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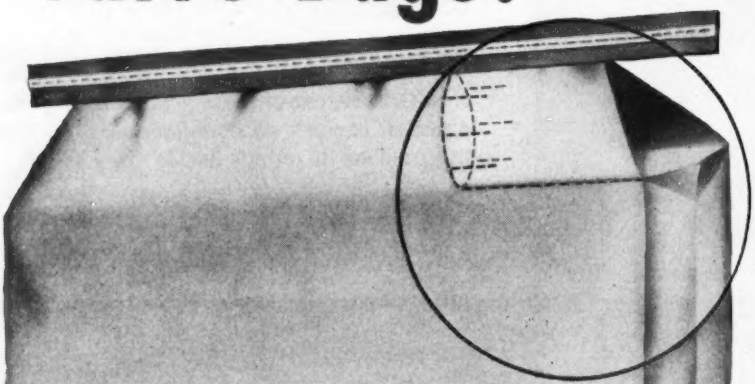

You should switch to Bemis B-FLEX promptly because of . . .

1. LOWER BAG COSTS. You'll save up to $4 per thousand compared with conventional inner-sleeve valve bags.

2. LOWER PRODUCTION COSTS. Faster handling on your packing machines.

3. FASTER PACKING. Are jam-ups a problem? Not with Bemis B-FLEX. No flapping inner-sleeve to slow down material flow.

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6. BETTER CUSTOMER SATISFACTION. No loose, torn sleeves.

And, of course, you get the added benefit of Bemis' crisp, bright, multi-color printing — the finest printing your brand can have on multiwall bags.

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Bemis BAG Company

B & I . . . . . .

the award-making American Institute of Management, are economic function, corporate structure, health of earnings growth, fairness to stockholders, research and development, directorate analysis, fiscal policies, production efficiency, sales vigor, and executive evaluation.

Chemical firms chosen for the third straight year are American Cyanamid, Celanese, Freeport Sulphur, Interchemical, Texas Gulf, Union Carbide, West Virginia Pulp & Paper, Dow, Du Pont, Durez, Hooker, Mathieson, Merck, Monsanto and Pennsylvania Salt. Second-year certificate winners are American Agricultural Chemical Co. and Victor Chemical Works.

Of the 3,000 leading concerns studied by the institute, remarks Institute President Jackson Martindell, only 330 were found eligible for certificates.

KEY CHANGES . . .

L. C. Perkinson: To vice-president, American Cyanamid Co., New York, N.Y.

Benjamin C. Betner, Jr.: To a vice-president, Continental Can Co., New York, N.Y.

John J. Toohy: To executive vice-president, E. R. Squibb & Sons, division of Mathieson Chemical Corp., New York, N.Y.

Harold W. Comfort: To board of directors, Commercial Solvents Corp., New York, N.Y.

Hal G. Johnson: To director, research and development, Western Division, Monsanto Chemical Co., St. Louis, Mo.

John L. Cassullo: To president, Dodge & Olcott, Inc., New York, N.Y.

Francis T. Letchfield: To board of directors, Oliver United Filters, Inc., New York, N.Y.

Elton W. Clark: To a director, Congoleum-Nairn, Inc., Kearny, N.J.

E. R. Durrer: To president, Givaudan-Delawanna, Inc., New York, N.Y.

Kneeland Nunan: To executive vice-president, Consolidated Vacuum Corp. Rochester, N.Y.

KUDOS . . . . . .

Kenneth H. Klipstein: Asst. General Manager and head, Technical Department, Calco Chemical Division, American Cyanamid Co., will receive the 1953 medal conferred by the Commercial Chemical Development Assn. for outstanding accomplishment in commercial chemical development.

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High Surface Sodium

ON INERT SOLIDS

Just how reactive do you want your Sodium to be? If you want it at its maximum energy level, in an easily-handled, easily-controlled form, your answer is High Surface Sodium (HSS) on Inert Solids!

Using simple, easy-to-follow techniques, our researchers have applied atomic layers of Metallic Sodium to inert solids such as salt, soda ash, carbon, alumina and sand. HSS is free-flowing over a wide temperature range and has a large surface-to-weight ratio of Sodium. Reactions can be carried out in seconds instead of hours. The high surface area of Sodium in HSS, available for immediate reaction, is the key to its importance to industry.

HSS provides, through the complete and rapid reaction of Sodium, the following advantages:

- ¶ Easy control of reaction rates and temperatures above and below the melting point of Sodium
- ¶ Simple adaptation to continuous operations
- ¶ Dry-way reactions of Sodium
- ¶ Greater safety by eliminating flammable solvents
- ¶ High yields
- ¶ Preparation of products in finely divided and reactive states
- ¶ Means of avoiding induction periods

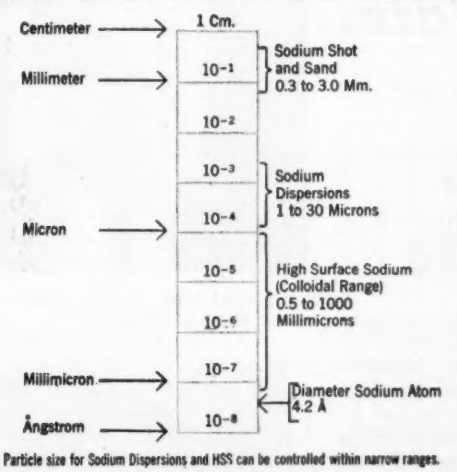
USES FOR HSS

1. Purification of gases, hydrocarbons and ethers (to remove oxygen, nitrogen, halogen and sulfur compounds, moisture and certain trace amounts of other impurities).
2. Preparation of Sodium Hydride and Sodamide for in situ use.
3. Reduction of Metal Salts and Oxides to finely divided metals, e.g., Zn, Fe, Pb, Cu, Ti, Ni, Pt, etc.
4. Catalyst for hydrocarbon cracking, polymerizations and rearrangement reactions.

APPARENT FILM THICKNESS VS. % Na IN HSS

% Na	Film Thickness on Alumina (Area—160 $M^2/g.$)	Film Thickness on Colloidal Carbon (Area—750 $M^2/g.$)
5%	1 Atomic Layer	<1 Atomic Layer
15%	Av. 2.5 Atoms Thick	<1 Atomic Layer
25%	Av. 5 Atoms Thick	Av. 1 Atom Thick

SODIUM PARTICLE SIZE AND FILM COMPARISONS



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U.S.I.

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DAVISON'S WATMOUGH: "Our headaches have a cumulative effect . . .

Problem—Down on the Farm

This week starts the annual two-month "mad rush" for makers of chemical fertilizers.

Slow sales during January and February promise to make the 1953 spring season particularly hectic.

Here, in an exclusive CW interview, a fertilizer v. p. examines his industry's stickiest problem: distribution.

Makers of chemical fertilizers must literally move mountains in order to supply the nation's farmers with their desired quantities of potash, nitrogen and phosphorus. Millions of tons, most of it in 80-lb. and 100-lb. bags, must be moved to where it is needed —on the farm. But this vast and growing transportation job is hopelessly complicated by the fact that the farmers are "in the market" only a few weeks out of the year. This creates a maze of giant-sized problems for the fertilizer makers, who—like any other manufacturers—would prefer to do business on a year-round basis.

The 1953 spring fertilizer season is just now getting under way, and this week CHEMICAL WEEK went to Baltimore, Md., to interview Bill Watmough, vice-president in charge of Davison Chemical's Mixed Fertilizer Division. Here, as a result of that interview, are his views on the problems that beset his industry—and the steps the fertilizer companies are taking to overcome them:

CW: What would you, as a leading executive in the fertilizer industry, list as your chief difficulties under today's market conditions?

Watmough: That's an easy question to answer—there are plenty of problems to choose from. But I'd rather not try to list them in descending order of importance. They're too interrelated. Our headaches have a cumulative effect.

CW: All right, suppose we put them in a consecutive fashion, working backwards from the farmer to your own raw material suppliers.

Watmough: Fair enough. That would put the farmers' buying pattern at the top of the list, which is where it belongs, since it directly or indirectly causes the rest of our problems.

CW: And what are they?

Watmough: Well, first there is the trouble with our wholesalers, who carry little or no inventory during the slack season. That puts the whole inventory load on our own warehouses, which in turn places a limit on the success of our effort to level out the peaks and valleys in our production schedules.

As if that weren't enough, our raw material suppliers insist on shipping to us in approximately equal monthly quantities. As a result, we're loaded up with both raw materials and finished goods at the same time. Yet chances are that a few months later, we'll be starving for both.

CW: Does that complete the complaint list?

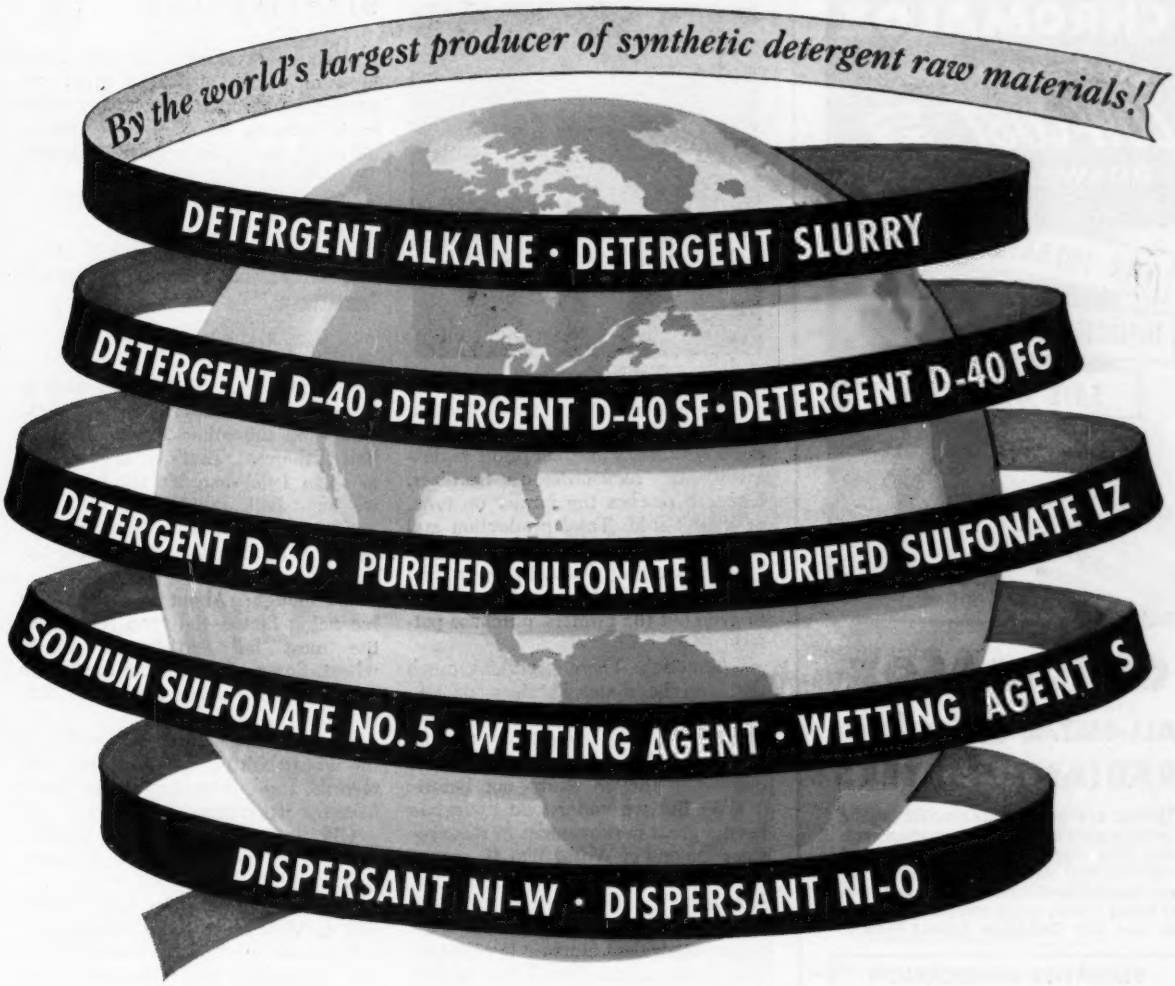
. . . . but after all these years, we're rather attached to them!"

Watmough: No, there's one other major difficulty. As you know, the market for fertilizers is growing by leaps and bounds. We're trying to plan for that growth, but it's almost impossible to figure out how much capacity should be built.

CW: Why is that?

Watmough: Well, we have a choice of evils. We can build capacity that's able to handle the peak months—but that means machinery and labor are wasted during the rest of the year. Besides, it runs capital costs up out of sight.

Yet if we shade that figure, we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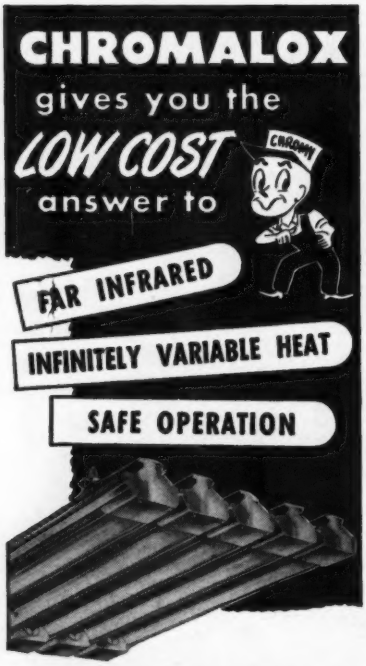

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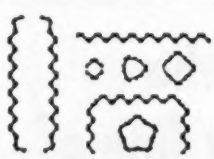

Cross-section views of a few of the many oven designs possible with Chromalox Radiant Heaters.

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CHROMALOX
ELECTRIC HEAT FOR MODERN INDUSTRY

can't keep up with demand in the critical weeks when we're out of inventory and shipping right from production. There's no such thing, realistically, as "back-ordered" fertilizer. Either it reaches the farmer on time, or it isn't sold. Total production and total sales are directly affected.

CW: Getting back to your first complaint, what steps are being taken to even out the farmers' purchase pattern?

Watmough: There is nothing much that can be done. Farmers, as you know, are mighty independent people. Despite all our hollering, and the government's pleading, they'll still buy when they're ready—not before.

CW: But we understood there had been a great improvement in this area since the end of World War II.

Watmough: There has been. In fact, that's the reason we were able to chalk up new production records without an equivalent increase in capacity. The farmers recognized the impact the various raw material shortages would make. They bought during the off-season to help both themselves and us.

But farmers read the papers, so all of this talk about our having plenty of sulfur, etc., is having its effect. Judging from the first two months of 1953, they're back to their old habits.

CW: We're sorry to hear that. Did their "temporary" cooperation during the last few years permit you to operate on an even-keeled year-round basis?

DISTRIBUTION. . . . .

Watmough: Hardly! By our standards, of course, it was a great improvement. But I doubt if any other basic industry would like to operate on a schedule that involves shipping

"There's no such thing, realistically, as 'back-ordered' fertilizer."

75% of the total yearly production in the six months between January and June—and the other 25% in the last half of the year. That's what happened to us in 1952—and it's the best year we have had.

CW: How would you rate your experience against the rest of the industry?

Watmough: About average. The balancing factor—the crop that takes the most fall fertilizer—is winter wheat. Some of our plants are in the Midwest, so we are helped in that regard.

Companies that operate entirely in the wheat belt can chalk up the best records; those centering in the South have the worst time of it.

CW: Is the 75% of yearly production spread out over the January-June months?

Watmough: No. Over half is shipped in March and April. That's why it is so serious when the farmers don't buy in January and February. Sales this year have been running well below last year's. It doesn't mean that total sales won't have equalled out by June, buth there'll be a terrible jam-up on production and shipments in the next two months.

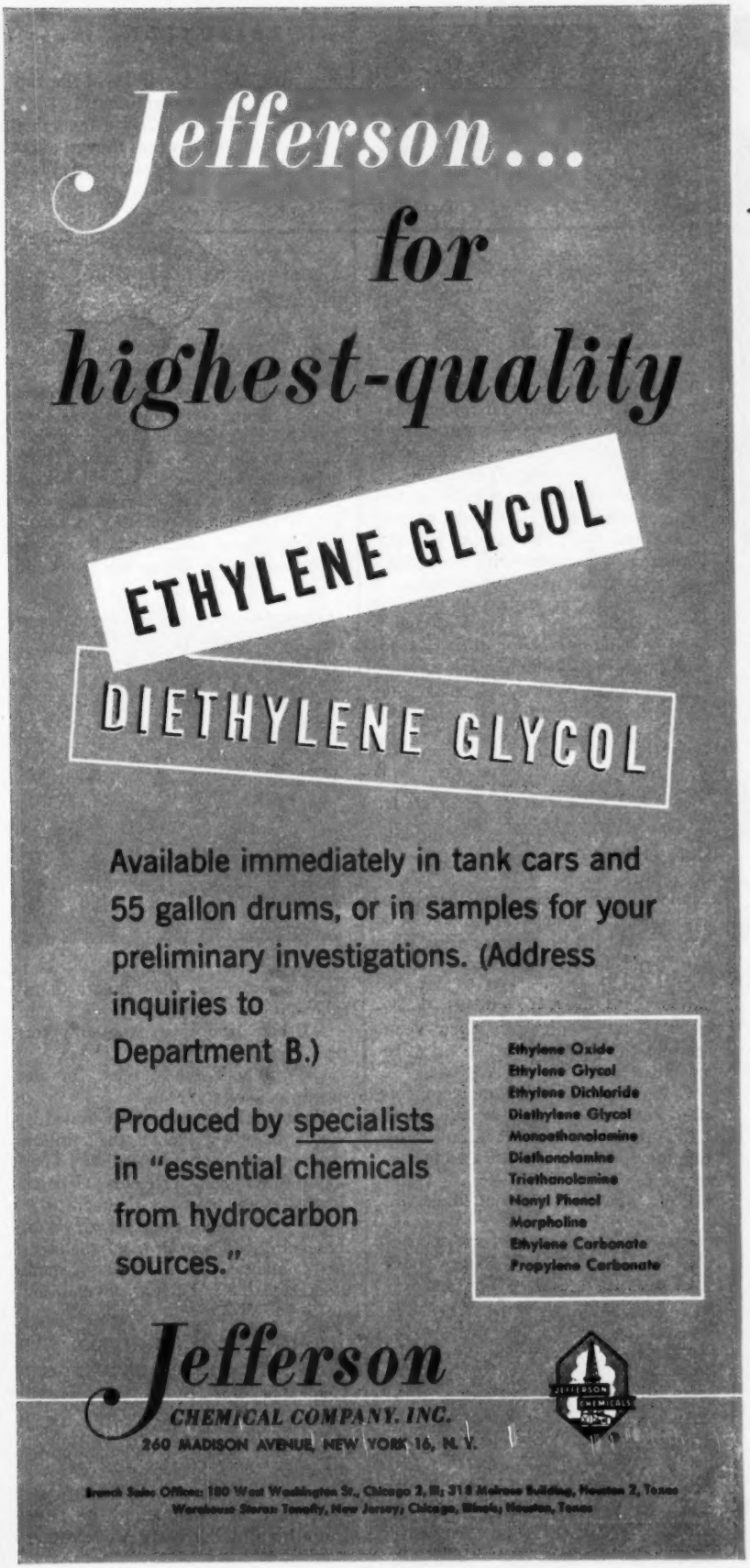
CW: You mentioned that the wholesalers refuse to carry a reasonable share of the inventory. What's the reason?

Watmough: It's a simple question of storage space. The dealers make their profits by moving material, not by storing it. When they aren't selling fertilizers, they use the space for items that are selling—like coal or animal

"The dealers make their profits by moving material, not by storing it."

feed. The best we can hope for is that they'll take about 15% of the pre-spring load.

CW: Has the fertilizer industry considered making it worthwhile for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Briefs

From recent literature

No. 5 in a Series

Antifoam agents particularly useful in paper pulp or other fibrous suspensions may be prepared by emulsifying waxes in water using a soap of ricinoleic acid or castor oil, and a stearate or oleate of ethylene glycol or diethylene glycol. The diluted emulsion is added to the pulp so that there will be present from one-half to three parts of solid for each million parts of stock suspension.

Magnesium and aluminum castings can be made non-porous by impregnating with a mixture of styrene and a polyester. The polyester is formed by reacting ethylene glycol with maleic anhydride and tall oil at 190° to 200°C. The castings are coated with the mixture and then baked at 150° to 175° C under a pressure of 75 to 100 psi.

Surface coatings for wood, metal, and other materials are obtained by dispersing plasticized polyvinyl butyrate in ethylene glycol. These coatings may be colored with pigments and fillers. A uniform dispersion is obtained by grinding the mixture in a ball mill.

Varnishes for printing inks and paper coatings which are odorless, thermosetting, highly adhesive, water resistant and highly flexible when printed or coated on suitable bases can be produced using glyceryl phthalate in an ethylene glycol, diethylene glycol vehicle. They possess high water tolerance, are unaffected by humidity, and are suitable for use on high speed presses.

These developments are abstracted from recent publications or U. S. patents. They may suggest applications of Jefferson Ethylene Glycol and Diethylene Glycol in your products or processes.

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the dealers—or the farmers—to buy ahead? How about off-season discounts or deliveries on consignment?

Watmough: Those techniques have been tried repeatedly. The usual result is that the customers insist on the same discounts in the rush season. Long-term, such concessions just act like price reductions—with no significant change in the buying pattern.

CW: Assuming, then, that the primary problem can't be licked, what are you doing to soften this blow at your own production plants?

Watmough: We try to make our plants flexible so they can roll with the punches.

"We try to make our plants flexible so they can roll with the punches."

Our biggest improvement has been in the development of granulated fertilizers. They store well during the long build-up period before the rush starts—and they "cure" in 10 days to two weeks instead of a month to six weeks. That's a big help when we're running the plants night and day to meet the peak demand.

CW: How do you store your finished fertilizer—in bags or bulk?

Watmough: Most of it in bulk. The bagging operation is usually no bottleneck.

CW: What is being done about the

raw material problem? Have the suppliers voiced any suggestions?

Watmough: No. They extend their sympathies, but I guess they're about as immovable as the farmers! We're caught in the middle.

"Long-term, off-season concessions just act like price reductions."

CW: Are there any hopeful signs ahead?

Watmough: Yes. More and more land is being converted to grass and pasture. That means fall fertilizer—which is a help. Another factor is the influence that the younger, college-trained farmers will have on the market. They realize that this on-again, off-again type of buying is upping production costs across the board. In

the final analysis, the farmers themselves are paying the bill.

It'll take time, but eventually this realization will take hold.

CW: What's the outlook for the fertilizer industry?

Watmough: Nowhere but upwards! We've barely scratched the surface. Farmers are now capitalists. They know they need fertilizers to keep down the unit costs of their crops.

CW: What will that growth do to these problems you've mentioned?

Watmough: Just make them more unmanageable: bigger inventories,

"In the final analysis, the farmers themselves are paying the bill."

bigger rush seasons, bigger shipping jam-ups.

But every industry has its own problems. These happen to be ours. And after all these years, we're rather attached to them.

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PAC CLINICIANS*: Charting a course between "dollars" and "ethics."

Serving Two Masters

A week ago last Thursday in Manhattan's Waldorf-Astoria Hotel, sharp-eyed observers could catch revealing glimpses of the brass-knuckled realism that underlies the kid-gloved selling of ethical pharmaceuticals. Occasion: the second annual Promotion Clinic sponsored by the Pharmaceutical Advertising Club.

Subject under discussion was "New Products—Their Promotion and Distribution," a close-to-the-heart topic in the competitively mushrooming pharmaceutical industry. With an annual manufacturers' sales volume exceeding $3¾ billion (of which an estimated 45% is derived from antibiotics developed in the last decade), the industry is in the midst of a growth upheaval. This fact puts its future squarely on the shoulders of the executives responsible for new-drug promotion, advertising and sales.

The difficulty of their task—and its inherent dangers—was exposed through a surgical probing by market researcher Robert Sessions, a partner in the firm of Alderson and Sessions.

New-drug promoters, said Sessions, must learn to live a double life. On one hand, they must preserve the scientific detachment and ethical caution that has earned for the industry the repute of being "the doctors' partner."

Yet, at the same time, he added, they must recognize that it takes hard-hitting salesmanship and chance-taking executive decisions to achieve solid commercial success. In this respect, selling drugs is no different from peddling groceries and silverware.

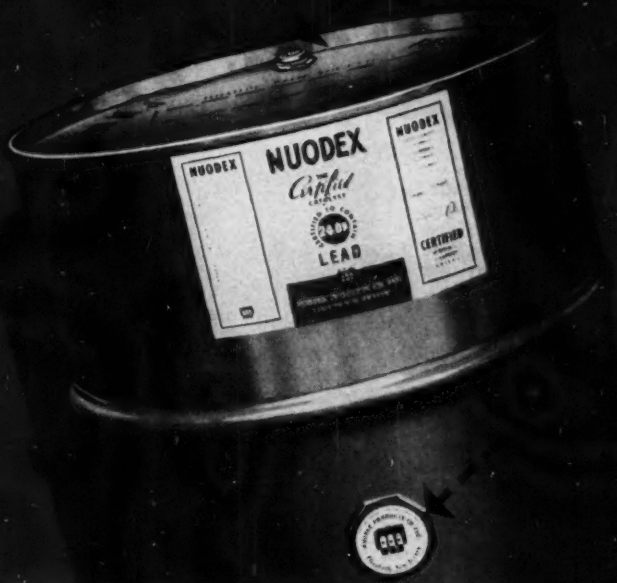
As the competitive race progresses, this contradiction of objectives is bound to become an increasingly difficult hurdle, said Sessions, and it is a credit to the industry that it has managed to resolve the two thus far.

"A Maddening Subject": Alfred LeBien, Eli Lilly and Co., then centered the discussion on one facet of this conflict by seeking an answer to the question, "Is Product Duplication a Curse or a Blessing?" (*i.e.*, is it a smart business tactic—or just a means of persecuting the druggists—to introduce products that match established ones sold by competitors?).

Calling it "a maddening subject," LeBien defended the manufacturers' position by calculating the profit-loss balance of a hypothetical pharmacist who chose to stock all 500 of the new products introduced by the industry, on the average, each year. Profits from

* In a huddle at the Promotion Clinic's morning session are (*l. to r.*) Charles Doerr, v.p., McKesson and Robbins; PAC President Ira Contant, of Hoffman-La Roche; John Toohy, exec. v.p., E. R. Squibb and Sons; Robert Sessions, partner, Alderson and Sessions; Alfred LeBien, merchandising director, Eli Lilly; and Clinic Chairman John Casey, of Smith, Kline & French.

Tri-Sure Closures protect NUODEX quality—and NUODEX customers



NUODEX additives and catalysts are used by many companies in the paint, textile, plastics, petroleum and other industries to introduce important qualities into their own products. These companies know they can rely on Nuodex additives, because Nuodex uses the right ingredients, the right processing and the right *protection:* Tri-Sure* Closures on every drum.

Nuodex Products Co., Inc. is one of the many shippers that have standardized on Tri-Sure Closures for over 15 years. Their experience is time-tested *proof* that *Tri-Sure* protection is the *best* protection for products in drums.

Just as surely as it pays to put quality into your products, it will pay you to safeguard that quality from contamination, leakage and pilferage with Tri-Sure Closures. Give every gallon you ship the security of the Tri-Sure *Flange, Plug* and *Seal.* Specify "Tri-Sure Closures" on every drum order.

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Tri-Sure

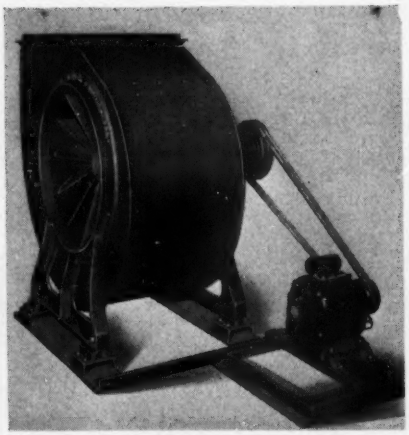
CLOSURES

"Buffalo" Tips on Getting the Best Service from your Fans

PICK the RIGHT FAN in the RIGHT SIZE For Greatest Economy

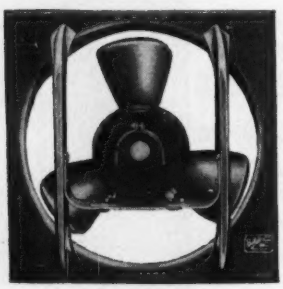
If you are considering a ventilation or air conditioning system, your choice of fan can determine its success or failure. The wrong type of fan may not have the right pressure characteristics in actual operation—may be wastefully inefficient or fall short of the required performance.

For systems in general, the centrifugal fan, such as the "Buffalo" Limit-load shown here, has the ideal characteristics . . . a stable, rising pressure characteristic . . . freedom from overloading . . . good efficiency over a wide range of capacities and system pressures . . . quiet, dependable performance.



"BUFFALO" SINGLE WIDTH TYPE "LL" FAN. Available in a complete size range for accurate selection.

A common fallacy in selecting fan size is to pick one that has a great deal of capacity beyond what is called for. This is wasteful, both in first cost and in driving power. In the "LL" group, it is possible to pick exactly the fan needed to do your expected job—from 600 cfm to 500,000 cfm, for static pressures from ¼" to 6" and higher. Picking the right fan means getting the air you pay for!



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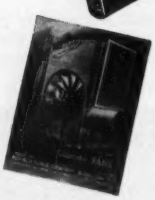

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the two-thirds that get off the ground would be twice as great as the loss from those that die on the shelves.

Besides, said LeBien, the inventory burden about which the druggists are complaining is often the result of their own greed. When a duplicate product comes on the market from a company that has not had to lay out the research and development funds needed for the original product, it is understandably priced lower. Seizing on this fact, the druggist stocks up on the cheaper brand; his inventories of the established brand become "dead stocks"; and he immediately voices the opinion that product duplication is putting him out of business.

The other side of this question was supplied, by inference, in some of the statistics quoted by Charles Doerr, vice-president of McKesson and Robbins. Using his own wholesale drug house as an example, he pointed out that pharmaceutical items carried in stock have increased from 6,500 in 1947 to 9,000 this year. Moreover, they now represent nearly half, numerically, of all the items sold to drug stores.

In view of this multiplicity, Doerr pleaded with manufacturers to help wholesalers move these new products by keeping their selling messages short, punchy, and to the point.

Based on Confidence: Effective communication to doctors and druggists was also the common theme of other talks. So many new products are coming to the fore—in such confusing array—that it is no longer possible to announce a new "wonder drug" and then wait for the phones to start ringing. Instead, all the tools of drug promotion—mailings, detailing, exhibits and journal advertising—must be sharpened and used.

But all the speakers reminded their audience that such aggressive selling should never negate the "precious confidence in the manufacturer" that is the ethereal foundation on which their billion-dollar future is based.

Settled Question

The ruckus in New Orleans (*CW. Feb. 14*) between Safety Commissioner Bernard McCloskey and his boss, Mayor deLesseps Morrison, over the question of unloading nitrate fertilizers within the New Orleans port area has now been settled—by a third party.

In a letter to the mayor, the New York agent for the fertilizer shippers made the unloading question academic by deciding "to divert our nitroline cargoes to Gulfport, Miss."

Among the reasons given for this

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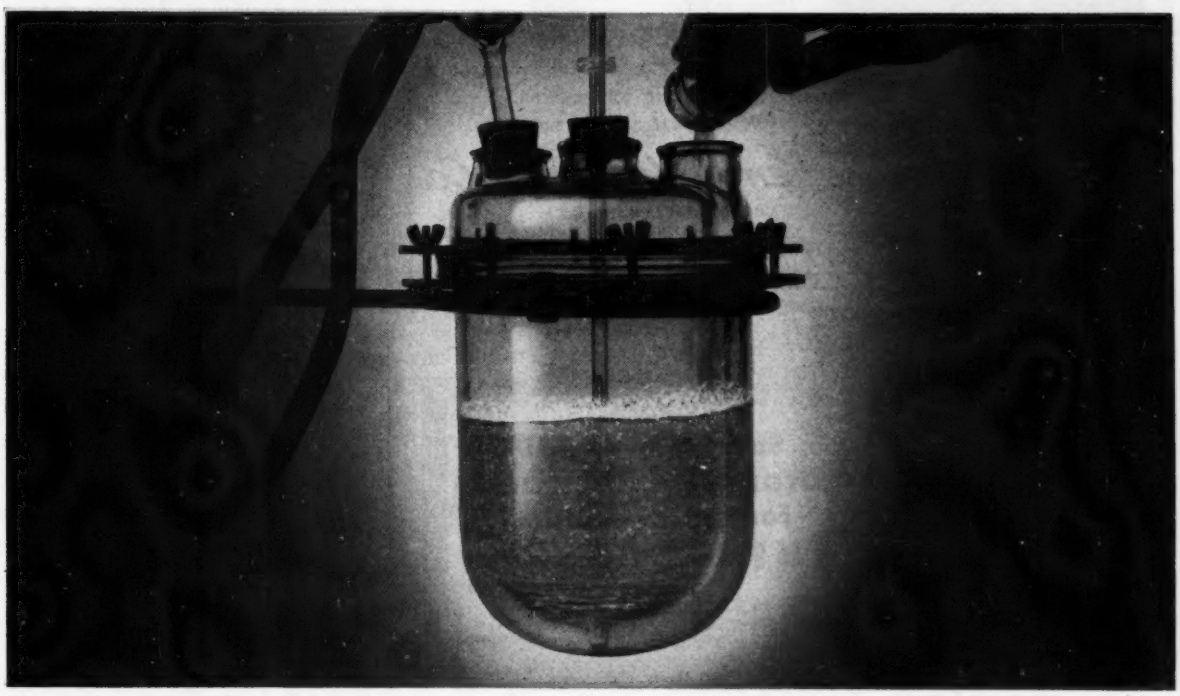
ETHANOLAMINE SOAPS MAKE VALUABLE EMULSIFIERS AND DETERGENTS

DOW ethanolamines combine with fatty acids to yield unusual soaps that stabilize oil-in-water emulsions, and improve emulsion paints, soluble cutting oil formulations, and detergent solutions



The combination of quality Dow ethanolamines with fatty acids results in ethanolamine soaps that can offer you a great many interesting possibilities for improving your product or process.

Stable emulsions of oils, fats or waxes in water can be formed with these soaps. Solutions of ethanolamine soaps in hydrocarbon or chlorinated solvents are also widely used as dry cleaning detergents.

From the manufacture of pharmaceuticals to the purification of natural gas, Dow monoethanolamine, diethanolamine and triethanolamine have proved their value in a wide range of applications. To learn more about these important organic chemicals —and the advantages they can offer you—write THE DOW CHEMICAL COMPANY, Midland, Michigan. *Dept.* OC 3-4.

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Economy? El Dorado's rigid quality control *reduces* your production costs and guarantees greater uniformity in *your* finished products. Saves a lot of processing headaches for you, too.

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decision: "Labor unfortunately is difficult to control in New Orleans . . . and the commissioner of safety has seen fit to conduct a newspaper campaign which has been alarming your citizens."

"Can Be Contagious": Mayor Morrison's position had been that if the Coast Guard approved such shipments, there was no point in the city's or the unions' counteracting that expert judgment.

"It is bad advertising that the port gets by turning any cargo down. It can be contagious."

$16,000 Salesman

The average salesman costs $16,000 a year to maintain in the field, reported Howard Franks of General Electric's Chemical Division at February's American Management Association Marketing Conference in New York City.

The salesman works an average of 250 days/year, at a cost of $63/day. Assuming that he can make three sales calls a day, this averages $21 a call. It means, said Franks, that if his expenses are 10% of sales, he must sell $210 worth of product per call, on the average, to justify his employment.

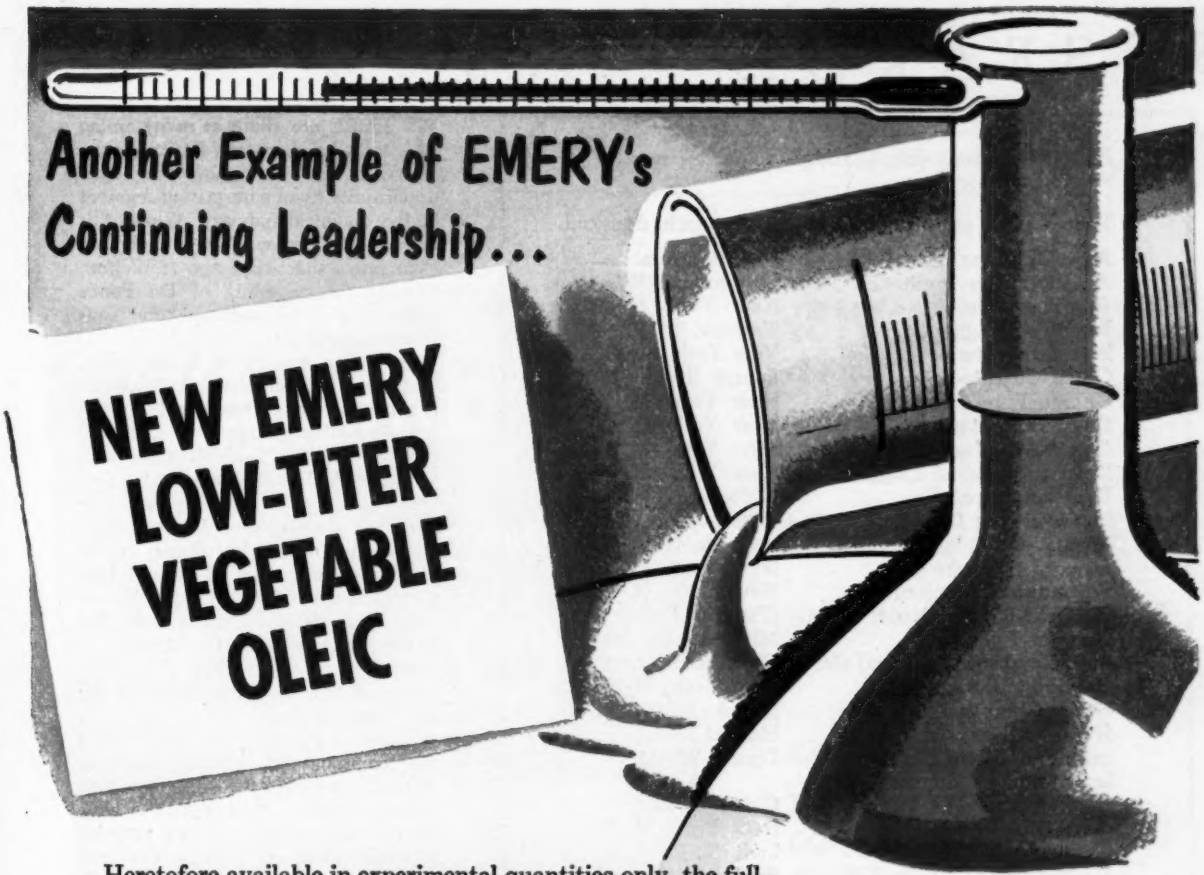
It follows, therefore, that a fourth call per day would reduce the salesman's average cost per call to $16. "Time," said Franks to his management audience, "is the salesman's greatest asset, but like another powerful commodity, electricity, it cannot be stored. Neither can we recover time, once lost.

"As professional managers, we should provide our salesmen the means with which to make more effective use of time—and then assist them in their use of these selling tools."

But, continued Franks, the real sales goal is not necessarily the lowest sales cost at any given moment. Rather, it is the optimum cost—that which will bring in the greatest amount of business per dollar expended.

To reach this goal, management must develop effective sales expense controls. Here are the fundamental components that Franks listed as essential to an effective control program:

- Sound marketing and sales policies coordinated with reasonable sales objectives.
- Sales and expense budgets that are realistic, usable and flexible.
- Coordination between departments and an effective follow-through on all sales efforts.



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NEW EMERY LOW-TITER VEGETABLE OLEIC

Heretofore available in experimental quantities only, the full-scale production of Emersol 241 Vegetable Elaine opens many new applications where low titer is essential. Specifications of this all-vegetable oleic acid are as follows:

Iodine Value	85-95
Titer, °C	5-10
Acid Value	191-197
Saponification Value	192-198
Color (Lovibond 5¼" cell)	15Y/3R Max.

This new product, a low-titer counterpart of Emersol 240 Vegetable Elaine, is the tenth oleic acid in the Emery line.

EMERSOL VEGETABLE ELAINES are superior replacements for olive oil foots in soaps and shampoos and so-called "castile" soaps. Check Emersols 240 and 241 in your formulation today!

This complete selection of high-quality, high-stability Emersol Elaines assures you of the best oleic acid for your specific application.

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Emersol 212 Elaine
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Emersol 240 Vegetable Elaine
Emersol 241 Vegetable Elaine

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Emersol 201 Saponified Red Oil

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These firms supply the bulk of research demand.

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Calco Chemical Div.	Bound Brook, N. J.
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Cole Laboratories	New York, N. Y.
Conray Products Co.	New York, N. Y.
Desmo Chemical Corp.	New York, N. Y.
Dow Chemical Co.	Midland, Mich.
The Du Pont Co.	Wilmington, Del.
Eastern Chemical Corp.	Newark, N. J.
Edward S. Burke Co.	New York, N. Y.
Fairmount Chemical Co.	New York, N. Y.
General Biochemicals, Inc.	Chagrin Falls, Ohio
General Mills, Inc.	Minneapolis, Minn.
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Winthrop-Stearns, Inc.	New York, N. Y.

Aminos Spell Opportunity

Planned expansion in bulk methionine capacity spotlights an intensive research push for new amino acid applications.

Hottest possibility: a huge market for lysine in supplementing the human diet.

Chief hurdle: a manufacturing process to turn out large quantities at a reasonable cost.

THERE are about as many amino acids as there are letters in the alphabet. And right now they spell opportunity to an enterprising segment of the chemical industry. Where this opportunity lies was made only too clear just a short time ago (*CW, Jan. 24*) by the unveiling of Du Pont's plans for a $4 million methionine plant at Beaumont, Tex.

Du Pont's methionine is earmarked for poultry feed supplements. It's hardly a new or unaccustomed role for the sulfur-containing amino acid; Dow and U.S. Industrial Chemicals have been servicing the barnyard market for several years. To insiders, however, the Du Pont development is more than just a case of another finger in the pie. For the same kind of research that prompted a multimillion dollar investment in methionine, could mean big things for select amino relatives.

Vital to an insight into this brand of speculation is an appreciation of the role of amino acids in animal nutrition. Proteins are polymers of various amino acid combinations. During digestion, proteins are hydrolyzed to component amino acids and small peptide chains. Nutritional quality of different proteins depends, then, on their amino acid make-up and the ability of the digestive chemistry to free the individual acids.

But that's not the entire story. Fortunately, the animal body (in this case, the chick) is not wholly dependent on outside sources for all the amino acids it needs. It can synthesize many—most, as a matter of fact, if they are not ingested in sufficient amounts. The remainder must be supplied in the diet, are called "essential" amino acids. Unfortunately, not all the essential amino acids are abundant in readily available foods. Three, in particular—methionine, lysine and tryptophan—are often in poor supply.

This observation is readily confirmed by a rundown of common poultry feed substances: Soybean oil meal is deficient in methionine; cottonseed oil meal is lacking in lysine; meat bone scrap is short of tryptophan; sesame meal is deficient in lysine; corn protein is poor in tryptophan and lysine; barley is deficient in lysine; and milo is poor in all three. Conspicuously, fish meal is well balanced in tryptophan, lysine and methionine.

In the words of Dow researcher Julius Johnson, the problem of commercial feed formulation (with respect to protein) comes down to "properly balancing the protein contributors so that amino acid deficiencies in one in-

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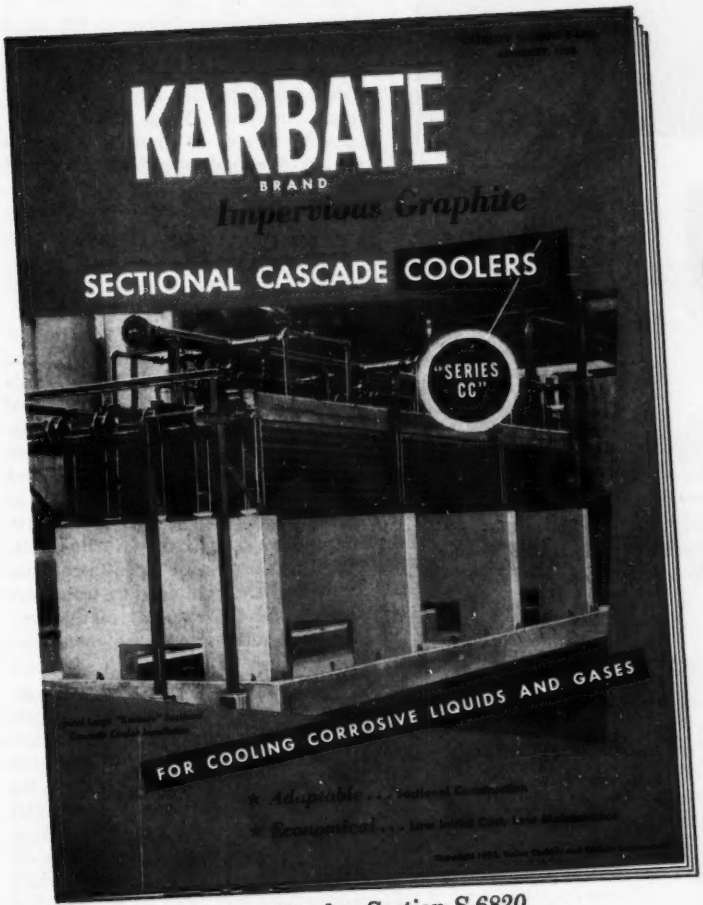

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gredient are compensated by surpluses in others—and doing this at lowest possible cost."

Room for Dispute: Putting this guiding principle into practice, however, poses some practical questions. In the first place, the exact amino acid requirements of chicks is open to dispute. And the supplement needs of West Coast chicks (close to fish meal sources) are liable to be quite different from those of Middle West chicks (with readily available soybean meal supplies). Then, the growth-boosting effects of riboflavin, vitamin B_{12} and the antibiotics introduces still another complicating factor.

Hitting the best supplement-feed balance—determining whether an amino acid supplement is of any value—for each situation is keeping animal nutrition investigators busy.

How they have fared with methionine is clearly illustrated by some hard figures. In 10-week feeding trials of corn-soy-fish meal diets supplmented with a pound (or less) of methionine per ton of feed, Dow researchers have obtained increased chick growth and improved feed efficiency amounting to added profit (over feed costs) of $10-67 per thousand birds. In some diets the profit boost came to $50 per thousand. And Du Pont feeding tests have also proved the value of methionine-fish meal rations over fish meal controls.

A Paradox: Apply economic advantages like these to a poultry industry which will bring an estimated billion broilers to market this year and you get a rough idea of the appeal to the chemical manufacturer and poultry raiser, of methionine supplementation. Of course, behind it all is a large-scale synthetic methionine process which plummetted cost from several hundred dollars a pound to $3. And therein lies an amino acid paradox:

Amino acids are present in all protein, animal or vegetable; yet methionine is produced commercially by synthetic methods. A practical synthesis is almost a prerequisite to commercial amino development. It's not because methods do not exist for extracting amino acids from protein. On the contrary, most available amino acids are obtained from natural sources: Commercial glutamic acid comes from sugar beet liquor; tryptophan is obtained from gelatin; histidine from blood meal; tryosine from a dairy waste; creatin from meat scraps.

But extraction is a costly affair—too costly in most cases for all but premium applications. With the notable exception of glutamic acid, most refined amino acids find their chief out-

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lets in medicine and biochemical research.

On the development of practical synthetic processes hangs the commercial hopes of several promising members of the family.

• Tryptophan, an essential amino acid, is likely to be marginal or deficient in feeds which contain meat scraps and tankage. Commonly used broiler feeds are not significantly improved by tryptophan supplementation. But swine rations have shown a definite response. There is good reason to believe that small quantities of tryptophan could return worthwhile profits to the swine raiser.

Right now tryptophan is too costly for practical use. But it can be made synthetically and the probable availability of moderately priced coal hydrogenation indole isn't going to retard process development. A good deal more nutritional research will be required before tryptophan supplementation is a commercial reality.

• Lysine is perhaps more likely to be the next to follow in methionine's footsteps. The compound does have a potential market in livestock nutrition. A Dow spokesman ventures: "If the cost . . . . can be reduced, lysine may find extensive use in diets containing cottonseed meal, and in laying feeds based primarily on mixed grains."

And a reasonably low-cost lysine may be a lot closer than is generally realized. Du Pont researchers worked out a promising synthesis in 1949. Now in partial pilot-plant operation by Electrochemical Div., the Du Pont process starts with furfural, goes to the amino acid by way of tetrahydrofurfuryl alcohol, dihydropyran and hydroxyvaleraldehyde.

Unlike methionine, which is effectively utilized in the DL form, lysine (and amino acids in general) is biologically active only as the L isomer. Synthetic methods give a DL mixture, but for nutritional purposes it would be more profitable to make the L isomer than the racemic mixture. By treatment with heat and acid, the mixture can be resolved almost completely to the L isomer. Lysine now is pegged at about 8-10¢ a gram in experimental lots, but Du Pont figures it could eventually drop cost to about $6 a pound. The Du Pont product would be sold as 95% L-lysine monohydrochloride.

When lysine does bow in, it could well change the face of the bulk amino acid business. For Du Pont is looking beyond the barnyard to a ripe potential market in human nutrition. Underlying this approach is the belief, voiced by a company representative that "in many instances the effective supply of dietry protein could be increased by as much as 50% to 100% by amino acid supplementation . . ." In areas where foods derived from wheat are important staples, substantial over-all improvement in protein nutrition could be realized by fortification with lysine.

"Diets consisting largely of rice would require supplementation with lysine and threonine, while those dependent on corn could be improved by addition of lysine and trytophan. Where root or legume proteins such as those in beans or potatoes are leading staples, fortification with methionine, or combinations of methionine with lysine and trytophan could accomplish similar results."

No Secret: Commercial implications of human diet supplementation have not escaped widespread notice. Apart from Du Pont—conducting its own program of nutritional research that flour processors, nutritionists and Food and Drug Administration have their eyes on—Dow and U.S.I., foodstuff producers like General Mills and A. E. Staley (with a going amino acid trade in monosodium glutamate) are taking more than an academic interest.

Human nutrition may be the next world for amino acids to conquer, but there's no moratorium on research along more traditional lines. Worth watching are:

• Tests which could pave the way for methionine supplementation of commercial dog foods.

• Work that is proving the value of methionine in turkey starter rations.

• Experiments aimed at determining whether low levels of supplemental methionine will improve the feeding efficiency of laying hens.

• Investigations of the economics of supplementing swine and ruminant feeds.

New nutritional uses are well enough. But in the last analysis, lysine, tryptophan and other commercial amino acid hopefuls will sink or swim on the ability of the chemists and engineers to develop commercially appealing manufacturing processes. If they succeed, though, the return could repay the investment many times over. Amino acids at reasonable cost could be the spark for potentially rewarding non-nutritional research.

Straw in the wind: A recent Du Pont patent (2,608,548) describes fiber and film-forming polyamides and copolyamides obtained from the polymerization and copolymerization of the N-carboanhydrides of two amino acids—α-aminoheptanoic and α-amino-

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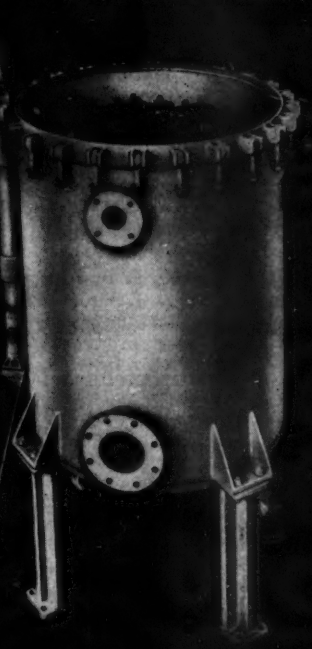

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RESEARCH . . . . . .

octanoic. These polymers have tensile strengths of 1,500 to 3,000 psi; elongations of 50-100%; are insoluble in most organic solvents; resistant to temperatures up to 350 C; show no melting and only slight browning.

Similar products have also been prepared from the N-carboanhydrides of DL-leucine and α-aminobutynic acid.

•

Atomic Target: Deuteroparaffin is the latest offering of Tracerlab, Inc. (Boston). A pure white powder which melts and solidifies to a hard sheet, the material makes a good target material for atomic particle accelerators. Its deuteroparaffin, Tracerlab believes, will facilitate production of special short-lived isotopes, many investigations in nuclear physics. Chemically, the new material is a long-chain paraffin hydrocarbon with deuterium substituted for ordinary hydrogen on the terminal methyls.

•

Polymer Speeder: The new-found value of beta radiation in polymerization reactions is underscored by the recent findings of Princeton polymer researchers Seitzer, Goeckermann and Tobolsky. Working with a radiation source consisting of strontium and yttrium isotopes, the trio compared the polymerization-promoting prowess of beta radiation with that of heat. Result: rate of radiation-induced polymerization of styrene, methyl methacrylate and an equimolar mixture of the two was more than twice that of the thermally initiated reaction.

•

Gas Boon: A new method of determining cyclohexane-type napthenes, developed by Sun Oil chemists may prove a boon in the analysis of gasoline compositions. Here's how it works: Sample is quantitatively dehydrogenated at elevated temperatures over platinum on a charcoal catalyst. Amount of aromatics produced gives the measure of naphthene content.

•

Lab Plans: A new, three-story laboratory building, to cost in the vicinity of $2 million, is planned by General Chemical Div. (Allied Chemical & Dye Corp.) for Morristown, N.J. A sizable addition to Allied's central research facilities, the new laboratories will replace the division's present Laurel Hill (New York) installation. The proposed move foreshadows an expanded program of research, better coordination with the company's central research activities.

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Barnyard Benefit: A patent on the use of propionic acid salts in the prevention and treatment of ketosis, a disease

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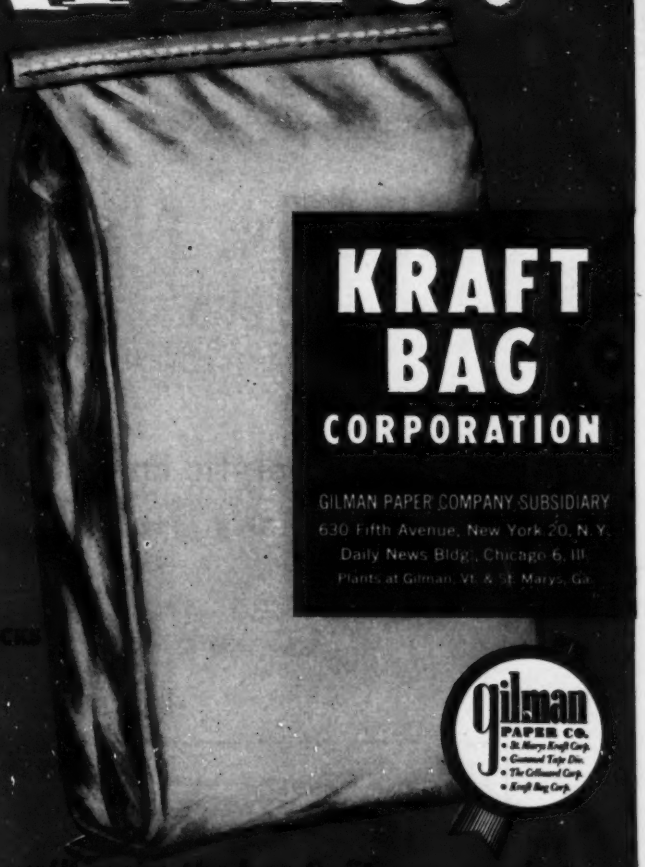

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RESEARCH . . . . . .

of dairy cattle, has been applied for by Cornell Research Foundation. The patent application will be administered, in the public interest, by Research Corp. (New York, N.Y.).

•

Just Out: Latest edition of ASTM standards on petroleum products and lubricants is now available from American Society for Testing Materials (Philadelphia). New material covers tentative specifications and test methods for: vacuum distillation of asphaltic substances; reagent water; tractor fuels; analysis of calcium and barium petroleum sulfonates; mercaptan sulfur in jet fuels; and asphalt-base emulsions for roof coatings.

•

On Trial: Candicidin, the anti-fungus antibiotic recently discovered in the laboratory of Selman Waksman, is being tested on experimental animals at University of Pennsylvania. While researchers at Pennsylvania and elsewhere are probing the new antibiotic's clinical potential, agricultural scientists at Rutgers are testing it against Dutch elm disease—a debilitating fungus infection of shade trees.

• Also getting the once-over is a new antibiotic isolated by researchers of Sharp & Dohme, Inc. (Philadephia). Called xanthothricin, it's active against both gram-positive and -negative bacteria, does not attack yeasts or molds.

•

Ortho for Para: Methyl toluenesulfonate, a new commercial methylating agent, is newly available from Monsanto Chemical Co.'s organic chemicals div. Made by esterfying a high-*ortho*, low-*para* mixture of toluenesulfonic acid isomers, the new product—on the strength of better stability—is a logical replacement for methyl-*p*-toluenesulfonate in dyestuff manufacture. Other possible uses: catalyst for preparation of alkyd resins; in the manufacture of photographic and pharmaceutical chemicals.

•

Search No More: National Lead Co. (New York, N.Y.) reports the successful conclusion of "a long search for a completely water-white material with a high refractive index, suitable for gemstone and optical uses." It's a synthetic crystal of strontium titanate, grown by flame fusion at the company's Titanium Div. research laboratories, Sayerville, N.J. Color and brilliance of the new crystal resembles those of diamond; in hardness it's comparable to jade. Potential applications: for jewel stones; in the manufacture of optical equipment. Production is now under way, will soon reach commercial scale.

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Just as one shortage begets another, the successful solution of one problem often creates a new problem all its own. At least that's what The Brown Co. (Berlin, N.H.) is learning after a search for an alternate to Frasch sulfur as a raw material for its sulfite pulping process.

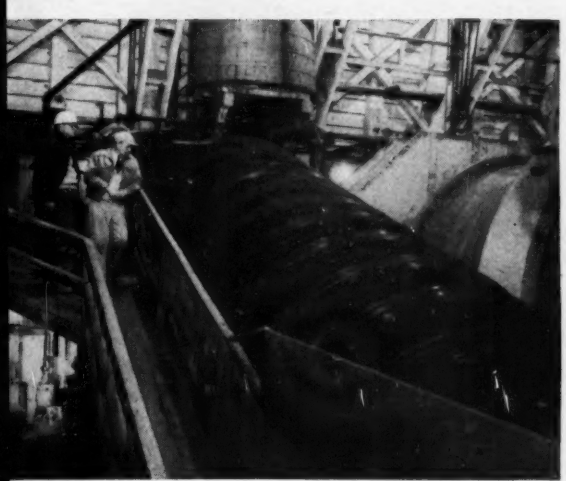
It found that iron sulfide—discarded tailings from the nearby mill of the Vermont Copper Co.—could be roasted in a Dorr FluoSolids roaster to give a gas running 13% sulfur dioxide, which is more than adequate for its purpose. But now it finds itself with a tonnage by-product in the form of high-quality, powdered iron oxide and no ready market for it. Fortunately, it finds the new problem of building a market much happier than the dim prospects of facing another sulfur shortage without an assured source of supply.

Taking a First: Although there are several more on order, the Brown roaster lays claim to being the first one installed by Dorr. It has been in continuous operation since last spring and has lived up to all expectations. It has, in fact, been lighted only once.

Presently, Brown is turning out sulfur dioxide equivalent to 9,000 tons of sulfur a year. That takes care of half the firm's requirements for sulfur. But the plant was built with an eye toward eventual doubling of capacity should the sulfur outlook warrant it.

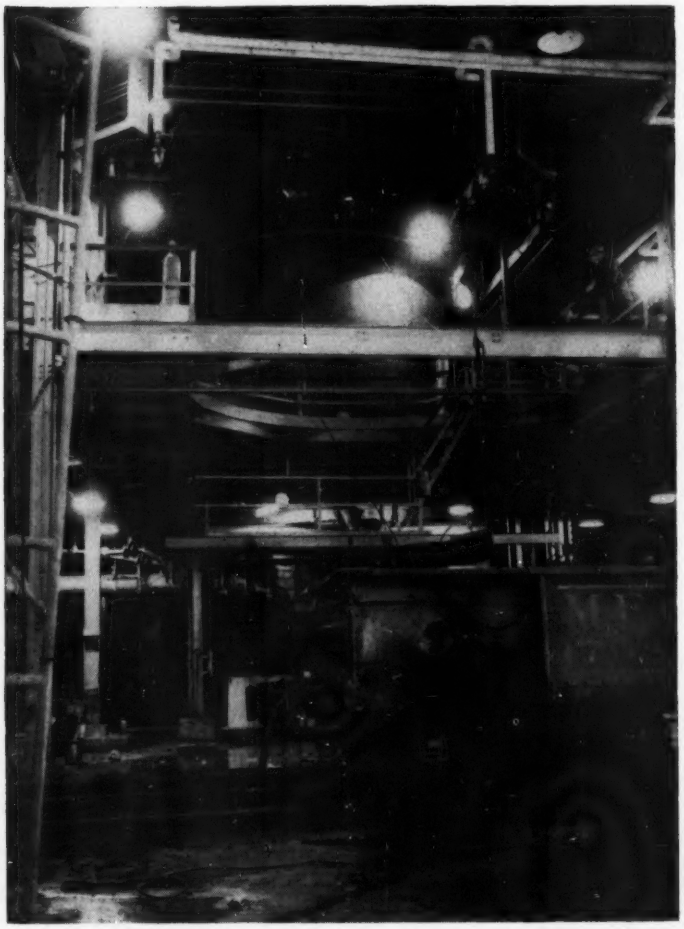
The Berlin plant handles 75 tons/

1 AT THE COOPER MINE in South Stratford (Vt.), an operator prepares a hole for blasting. Vermont Copper mines the ore, . . .



2 REMOVES THE COPPER by flotation. Tailings (pyrrhotite) are the raw material for Brown's roaster.

3 PYRRHOTITE ARRIVES at Brown's Berlin (N.H.) plant in gondola cars. It's diluted with water to form a slurry.



4 THE SLURRY IS PUMPED to the roaster where sulfur dioxide exits through the top, iron oxide through the side.

day of iron sulfide (pyrrhotite). It arrives from the Vermont Copper Co. mill in South Stratford (Vt.) as a fine powder, containing about 10% water and small amounts of impurities.

At the Brown plant, it's fed to a log washer and repulped with water to a slurry that runs 70-75% solids. It's then pumped to the roaster where the temperature is controlled at 1,600-1,650 F. There it comes into contact with a stream of air moving upwards at a rate of 1 ft. per second. Sulfur in the slurry exits through the top as sulfur dioxide, is sent through a series of cyclones and scrubbed before going to the acid tower.

Iron oxide discharges through an overflow pipe on the side of the reactor. The finished product is a fine powder (65% passes 325 mesh) analyzing 65% iron. The product is not black enough for use as pigment. Brown, however, thinks it might prove useful as a filler in black molded articles although there it would have to compete with readily available, cheap materials.

It could, of course, be sintered and sold as feed for blast furnaces, but that would involve extra costs of processing and freight charges to the steel centers. Brown's output, moreover, is not likely to excite the interests of the steel industry. What it is looking for now is a quantity outlet where the high purity would be an asset.

5 ANNUAL OUTPUT of the roaster is equivalent to 9,000 tons of sulfur, about half of Brown's requirements. Some idea of the wood requirements can be obtained from these two views of the firm's stockpile of wood waiting to be pulped.

PROSPERITY IN THE USA: How Wealthy Are We?

Again, how prosperous *are* the people of the United States?

This is the third of a series of messages devoted to this crucially important and much-debated question. The first two messages dealt with what has been happening to our national income, both in terms of its growth and how it is divided among individuals.

This third message deals with what has been happening to the resources—factories, farms, mines, and equipment of all kinds—out of which income is created. It deals with what economists call our wealth.

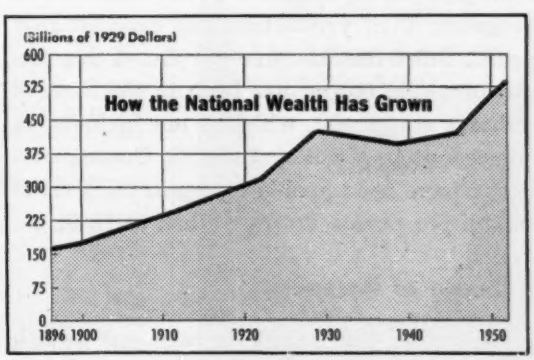
It is possible for a nation to enjoy apparent prosperity for a time by rapidly exhausting its resources. But to sustain prosperity over the long pull a nation must see that its wealth is not dissipated. Hence what is happening to our wealth now is a harbinger of what is going to happen to our prosperity later on.

How Wealth is Measured

It is often asserted that the most vital element in a nation's wealth is its people. There is a lot in this idea. For example, the full value of a country's hospital and surgical equipment depends on its physicians and their skill in handling the equipment.

However, no one has ever devised a satisfactory way to put a value on human beings. So people are omitted from calculations of national wealth. So, too, is military equipment. It is regarded as basically destructive and hence not a real addition to wealth. Otherwise, the wealth of a nation is calculated in terms of the dollar value of its physical resources.

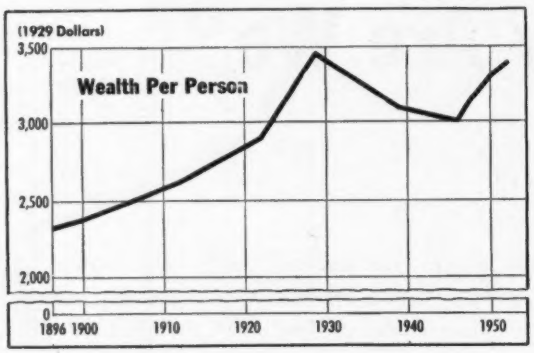
The following chart shows the wealth of the U.S.A. at various intervals during the past 50 years. For the period through 1948 the figures come from a pioneering study by Raymond Goldsmith of the National Bureau of Economic Research, which is widely regarded as the foremost organization in its field. The figures since 1948 are estimated. To remove the effect of price changes, all of the wealth figures are calculated in 1929 prices.



From this chart one fact stands out clearly. It is that since 1929 our national wealth has not been increasing as steadily as it did during

earlier periods. Indeed, in 1946 our total national wealth was actually less than it was in 1929. Only in the last six years have we been able to make any consistent additions.

Even these gains are less impressive when the growth in our population is taken into account, as illustrated by the following chart.



This chart makes it clear that when the nation's wealth is divided by the population, we are slightly worse off per person today than we were in 1929. This is the case in spite of the large additions to our national wealth since 1946.

Depression and war are the two principal reasons we have made no progress in increasing our wealth per person since the 1920s. The depression brought mass unemployment and greatly reduced production which ruled out any increase in wealth. During World War II and again during the post-Korean mobilization program, U.S. production has reached new peaks. But a considerable portion of this record breaking output has been in the form of military equipment, which is not included in an accounting of national wealth. Consequently, we have been unable to regain the level of wealth per person which we had in 1929.

A Brake of Prosperity

What does this failure to raise our wealth per person mean? It means that we have fewer resources with which to create income for each individual. It means that we have made no progress in the crucial task of assuring future increases in prosperity.

As the second editorial in this series demonstrated, we have gone so far in equalizing individual incomes that "the possibilities of increasing the income of the rest of the people by 'soaking the rich' have largely disappeared." From now on the only promising way to increase our individual incomes is to increase our national earning power.

During the past four years it has taken about $3.60 of national wealth to yield $1 of income after taxes. This is a low figure for the wealth needed. Prior to World War II there were long periods when it took at least $5 of national wealth to produce $1 of national income. The experts in this field are by no means certain that it will not again take $5 rather than $3.60 of wealth to increase income by $1.

But let us assume that $3.60 of wealth will suffice to provide $1 of income in the years ahead. If by 1960—seven years from now—the income of the average American is to be increased from about $1490, where it stands at present, to $2000, we must add $310 billion to the national wealth. This is nearly three times as much as we have added to our wealth since the end of World War II, seven years ago.

Because we have made large additions to our productive equipment in recent years, fears are frequently expressed that we shall soon be plagued by an excess of such equipment. But the facts about our national wealth do not support this conclusion. They indicate that we still have ahead of us a tremendous job of increasing our resources if the American standard of living is again to resume the steady climb which was interrupted by depression and war.

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P-E'S WILLIAMS (left): For complete control, a unique process characteristic.

Closing the Circle

Last week, Norwalk's (Conn.) Perkin-Elmer Corp. made another entry on the automatic control ledger, unveiled two new infra-red continuous process stream analyzers (CW Newsletter, Feb. 28).

The instruments, Model 93 Bichromator and Model 105 Tri-Non analyzers, are designed to provide continuous chemical process control.

American Cyanamid Co. has already shown an active interest, will buy the first six analyzers for its New Orleans nitrogen products plant. Perkin-Elmer figures to place more of the instruments on a test basis.

The variety of possible applications is what decided P-E on two models instead of one; it felt that no one analyzer could handle the variety of known and potential chemical process control problems. However, basic theory in both cases is the same.

As pointed out by P-E v.p. in charge of research, Van Zandt Williams, in order to close (or automatically control) an entire chemical operation, it is necessary to find a unique process characteristic that can be instantaneously measured.

A compound's infra-red spectrum is the key. In a plant stream, where several components are mixed, this infra-red fingerprint—unlike other characteristics, such as specific gravity and refractive index—is retained, even permits identification of isomers.

The new analyzers put this fundamental theory to effective use: A detector unit picks up the differences in the transmitted radiation, converts them into electrical signals. These signals may then be used for pinpointing concentration or for direct control of process variables.

The instruments themselves differ in operating principle, overlap somewhat in applications. Tagged at $5,000 to $7,000, the Bichromator works on liquid or gas streams, is unique in that it is apparently the first infra-red spectrometer successfully transplanted from the calm of laboratory to the turbulence of the plant.

The Tri-Non analyzer, while approximately $1,000 less, is presently limited to gas stream operation. It is not a spectrometer, is—to be exact—a non-dispersive, positive-filter-type infra-red analyzer.

Differing from other* filter-type analyzers in having a single radiation source and three radiation beams, P-E's Tri-Non is reputed to have superior sensitivity and stability in plant operation, will be used where there is substantial wave length interference by stream components.

How the new P-E instruments will prove out in actual plant operation is the big question. But both have definitely come a long way (*CW, July, 14, '51*) from their delicate laboratory prototypes. And together with such instruments as Consolidated Engineering Corp.'s new analytical mass spectrometer (*CW, Feb. 28*), they are slowly but surely closing the circle of automatic plant control.

* Baird Associates, Leeds & Northrup, Mine Safety Appliances and Cary analyzers all have two radiation sources and two radiation beams.

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Thousands of tons mined daily, but where does it all go?

Look around you in any grocery store and what do you see — canned goods of all kinds! Soups, vegetables, fruits, berries! Believe it or not, you're looking at merchandise that consumed a lot of Sulphur in the making.

Tin cans are made of tin plate. Tin plate is made of sheet steel. Sheet steel is made with the help of sulphuric acid—pickling, as they call it, the process that removes scale preparatory to plating. In 1951, the sheet division of our great iron and steel industry is estimated to have consumed 140,000 long tons of Sulphur in the form of sulphuric acid. That in itself makes quite a dent in our supplies of Sulphur. Add to this almost as much more for treating wire rod, plate, strip, bars, etc., and you can see that to make finished steel, regardless of form, the iron and steel industry must use lots of Sulphur in the form of sulphuric acid.

Right here is an excellent example of the interdependence of all of our industries. To produce steel requires a lot of Sulphur. To produce Sulphur and other mined products requires a lot of steel. This interdependence of industries is one of the country's sources of strength.

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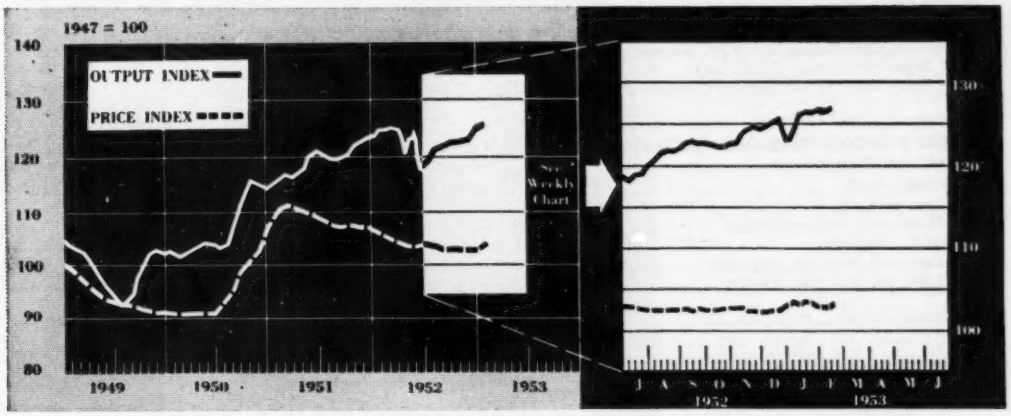
MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

In case you're not finding adequate supplies of certain chemicals, there may be a simple reason: not enough to go around.

The National Production Authority's latest scarce material list spots the following: acetylene, alkyl and aromatic substituted phenolic resins, alkyl polysulfide (Thiokol) polymers, alpha picoline, argon, butadiene, calcium carbide, cobalt salts and driers, cylclohexanol, Freon 22, lithium chemicals and metal, nickel chemicals, oxygen, paraphenylphenol, paratertiary butyl phenol, pyrethrum, pyridine, selenium compounds, toluene.

But for one of these items, selenium, the supply picture is changing fast. NPA, while adding selenium to its list of materials subject to a 30-day inventory limitation, at the same time dropped allocation controls on it.

Oil from home-grown sesame seed may soon be competing with cottonseed, corn and coconut oils. In Dallas, 30 farmers, setting up as the Texas Sesame Seed Growers Assn., are betting they can harvest a newly developed strain of sesame by mechanical means, beat the 17¢/lb. sesame seed import price.

But don't worry about the future of cottonseed oil; S. J. Aires and E. J. Verity of Lukens Steel see smooth sailing ahead. Surveying the field for Lukens' cottonseed-oil solvent extraction plants, they conclude that "within the next 10 years the price will not fall below 12¢/lb. for any length of time," and that "an average cottonseed oil price of 15½¢/lb. seems probable."

For gum turpentine producers, long in the doldrums, the way ahead looks brighter; demand is improving. And although there is plenty of turpentine on hand right now, there may be less later. Reason: unfavorably cold and rainy weather continues to hold production rate at a low level.

Muriatic acid, in relatively tight supply six weeks ago, is now more in balance in most sections of the country. Producers are claiming that despite a falling-off of by-product material recently, the supply has loosened.

MARKET LETTER

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.5	126.9	125.2
CHEMICAL WEEK Wholesale Price Index (1947=100)	103.3	103.2	103.4
Bituminous Coal Production (daily average, 1,000 tons)	1,420.0	1,392.0	1,702.0
Steel Ingot Production (1,000 tons)	2,244.0	2,240.0	2,117.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	255.5	254.7	229.2

MONTHLY INDICATORS—Foreign Trade (Million Dollars)	EXPORTS			IMPORTS		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
Chemicals, total	$59.4	$58.3	$89.1	$20.2	$17.7	$18.8
Coal tar products	3.6	3.1	6.9	4.3	2.9	3.0
Medicinals and pharmaceuticals	15.2	15.5	25.4	0.4	0.4	0.6
Industrial chemicals	9.1	9.5	15.4	5.2	4.3	7.0
Fertilizer and fertilizer materials	3.6	2.8	5.0	9.1	8.5	7.0
Vegetable oils and fats, inedible	3.2	3.6	9.1	8.9	8.0	9.3

With price controls off, count on paint and glass products to hold the line. So promises Harry B. Higgins, Pittsburgh Plate Glass Co. president.

Plans for more synthetic glycerin are shaping up. With official details not yet released, Shell Chemical is readying to take up the unfilled portion (35 million lbs.) of the Defense Production Administration's 278-million-lb. annual capacity goal, may exceed that figure if DPA raises its sights. Probable plant location: Gulf area.

U. S. and Canadian drug and chemical exporters can benefit from latest Mutual Security Agency purchase authorizations:

- For France—over $7 million total, including $2.5 million carbon black, $970,000 borax, $500,000 dopes, $90,000 coal tar, $40,000 special paints, $450,000 neoprene, $1.7 million GRS rubber, $1.15 million butyl, $300,000 buna N, about $1 million CPI equipment.
- For Germany—$750,000 worth of medical and pharmaceutical preparations, including antibiotics.

Tobacco chemical users will be happy to hear that the 1952 burley season closed with a walloping 700-million-lb. total, nearly 100 million lbs. above government estimates. The dry growing season resulted in a heavy poundage, with high oil and gum yield crop.

Reports vary, but the aniline business is generally perking up. At least one large supplier, operating at full capacity, admits to best January and February sales in years. Some reasons for climb: more synthetic rubber production, boosted intermediate demands, awakening textile activity.

If you're looking for nonradioactive isotopes, they're cheaper now. Eastman Kodak has just slashed prices on its C13 concentrates. Sample listing: barium carbonate (60-70 atom percent), $160 per gram excess C13 (formerly $400).

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending March 2, 1953

UP

	Change	New Price		Change	New Price
Acetanilide, USP, bbls., 2,000 lb. lots	$ .19	$ .80	Benzol, pure, nitration, Birmingham district, gal.	$ .06	$ .36

DOWN

	Change	New Price		Change	New Price
Acid, Stearic, double pressed, bgs.	$ .005	$ .11	Progresterone, gm.	$ .70	$1.05
Hydrazine, free base, ret. dms., Niagara Falls	1.50	3.00	Testosterone, gm.	.92	.98

All prices per pound unless quantity is stated.

PLASTIC PIPE: In oil fields now. Soon in every home?

Coming Out Party

Polyester-glass fiber market, soaring 40% over previous year, promises to repeat in 1953, with car bodies, more plastic TV sets on way.

Latest reinforced plastics get-together draws double last year's crowd, impresses with size, variety, scope.

Steel makers, sensing inroads into their domains, are joining the parade toward plastics, starting to produce them too.

Last week, at the Shoreham Hotel in Washington, reinforced plastics came into their own. For three days, the 1,420 registrants at the eighth annual conference of the Reinforced Plastics Division, Society of the Plastics Industry, were bombarded with tales of success and progress in one of the fastest-moving segments of an expanding industry.

Just a growing youngster in the now billion-dollar, two-billion lb. plastics family, reinforced plastics are sprouting at a 40% annual growth clip. Bellwether materials are polyester resin binders and fibrous glass reinforcements. These now comprise about 90% of all reinforced plastics components, according to an SPI official.

Some idea of size and growth may be seen from these past and projected figures for these two materials:

	Polyester Resin Binder	Fibrous Glass Reinforcement
	(Millions of Pounds)	
1951	14	8 (est.)
1952	19	11
1953	27 (est.)	16 (est.)

For those in the industry, the growth in output stands secondary in significance to improvement in production methods. Fact is, the mechanized manufacturing stage has now been reached.

Discussing this point, Joseph S. Finger, general manager, Corrulux Division of Libbey-Owens Ford Co., recalled that only two years ago most items were produced by the "hand-sample" method. "Today," boasted Finger, "we're in mass production."

Military Note: With the meeting held in the nation's capital, a significant portion of the SPI program was devoted to cases of military applications. Thirteen service representatives testified how the new materials, in their opinion superior to any other for the particular use, were helping to solve knotty defense equipment problems.

Some examples of what is being developed by the defense forces:

- The U.S. Coast Guard had enthusiastic terms for their plastic hull 40-ft. service boats. Tested for the past two years, they were compared by Captain C. E. Brush, Chief of Testing and Development Division, with similar steel and plywood hulls. Reported Brush, "The plastic hull could take anything the steel hull could and was more rugged than the plywood hull." One big added advantage: in event of hull damage, repairs can be made by unskilled persons merely by following simple repair kit directions.

- The Coast Guard is also favorably impressed with plastic fresh and salt water tanks, for use under pressure. The tanks, not subject to corrosion, are said to perform as well as more expensive monel metal tanks and are far superior to galvanized steel.

- Both the Army and Navy are progressing with plastic piping for gasoline transmission lines. For example, the army's engineering and development center at Fort Belvoir, Va., has been testing experimental lines for some time.

- Reinforced plastic vests, now standard Korea G.I. equipment, are reported saving soldiers' lives daily.

- The Air Force is finding reinforced plastics admirably suited for helicopter production and for aircraft equipment such as hot air ducts, seats, antenna housings, containers, etc. And according to Major W. G. Ramke, of Wright Field Air Development Center, more extensive applications, even to complete wing structures and engine parts, now under test, seem to be entirely feasible. For these more rugged requirements, other resins, such as phenolics, and different (from fibrous glass) reinforcement materials are found to be especially valuable.

Right now, with the military deeply involved in developing defense applications, much of today's reinforced plastics economy revolves around government needs. The SPI estimates that currently 60% of all plastics production goes for industrial and mili-

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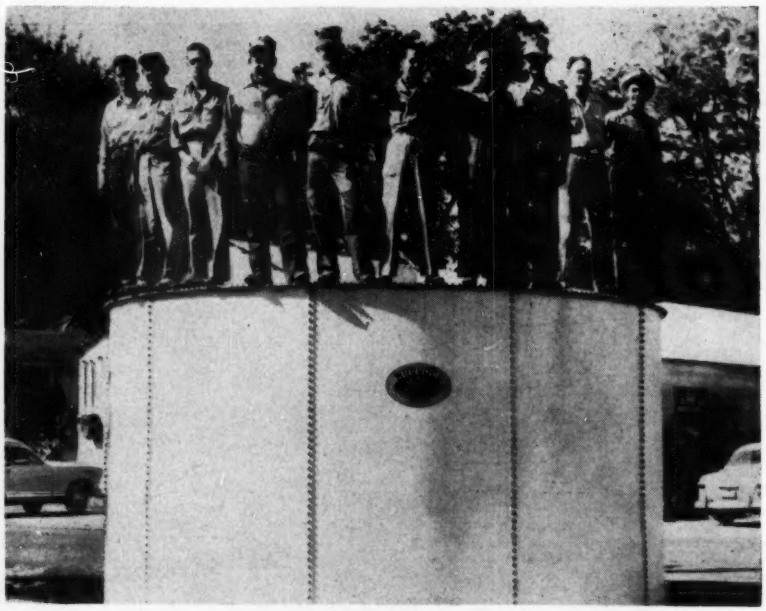


WATER TANKS: Coast Guard takes a stand for plastics.

tary needs; only 40% for consumer use.

Eye to the Future: But the plastics makers, while working with the military, are not forgetting the civilian consumer. The product display at the Shoreham set a record for variety.

Among items for non-military use: furniture, large refrigerator parts, fuel oil tanks, fishing rods, safety helmets, business machine parts, automatic washing machine tubs, bath tubs, tote boxes and building panels.

To single out a few particularly high sales-potential items on display:

• More plastic television set cabinets seem slated for the immediate future. And with 49 new TV stations scheduled to go on the air soon, plastic makers foresee booming sales in cabinets; these are in addition to set parts—knobs, tube sockets, dials, coated wire.

• One of the biggest potential markets is plastic piping. Easy to fabricate, it may eventually become standard for all residential home and apartment house water piping. Furthermore, if current experiments are successful, even street water pipes might be fabricated from reinforced plastic.

• The first mass produced plastic sports car body (Kaiser's) will show up on U.S. streets this summer. Other car companies are about ready to follow suit to a limited extent.

Other Indications: In addition to the impressive list of applications showing what's ahead in the way of products, the Reinforced Plastics Division demonstrated in other ways that its segment of the plastics industry has indeed "arrived."

For example:

• The program this year was markedly more well-rounded than those given in previous sessions. For the first time, the annual three-day meeting covered management and sales problems as well as the technical side of the industry.

• Committees are now set up to determine standards and test methods. Aimed at maximum industry communication efficiency and uniformly high standards, the work is subdivided according to end uses. These include sub-committees on: electrical flat sheet, flat sheet structural, corrugated sheeting, housings and appliances, boats, chemical resistance applications, containers, pipe, rod stock, decorative laminates, aircraft. One tangible effect of these standards has been the gradual but decisive elimination of fly-by-night operators.

Final Proof: If anyone needed more convincing proof that reinforced plastics are here to stay, it was provided by two news notes:

• Among those attending the annual exhibit for the first time, representatives of major steel companies came for hints as to where competition for steel may be expected.

• Late last week, a plastics company, the Reflin Co., of Gardena, Calif., disclosed it has already licensed a number of leading steel companies to use its process for making reinforced plastic pipe.

The difference between Life... and Death...

"Why should you give blood? Ask me—I ought to know. I fought in Korea. But since then I've been through the biggest battle of all—the battle for life itself. And it was blood—and blood alone—that saved me. Don't know when I'll be in a position to start repaying my debt by giving some blood of my own. But I will—some day. You can count on it!"

All kinds of people give blood—for all kinds of reasons. But every reason for giving blood is a *special* reason . . . just as every American life that can be saved at any time and at any place . . . is special. So whatever *your* reason for giving blood, this you can be sure of: Whether it goes to a combat area, a local hospital, or for Civil Defense needs—this priceless, painless gift will some day save an American life!

Business Executives!
✓Check These Questions!

If you can answer "yes" to most of them, you—and your company—are doing a needed job for the National Blood Program.

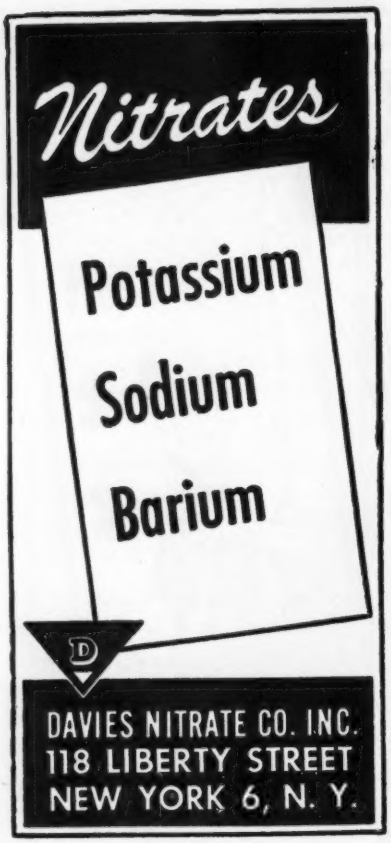
- ☐ Have you given your employees time off to make blood donations?
- ☐ Has your company given any recognition to donors?
- ☐ Do you have a Blood Donor Honor Roll in your company?
- ☐ Have you arranged to have a Bloodmobile make regular visits?
- ☐ Has your management endorsed the local Blood Donor Program?
- ☐ Have you informed employees of your company's plan of co-operation?
- ☐ Was this information given through Plant Bulletin or House Magazine?
- ☐ Have you conducted a Donor Pledge Campaign in your company?
- ☐ Have you set up a list of volunteers so that efficient plans can be made for scheduling donors?

Remember, as long as a *single* pint of blood may mean the difference between life and death for *any* American . . . the need for blood is *urgent!*

Give Blood Now

CALL YOUR RED CROSS TODAY!

NATIONAL BLOOD PROGRAM



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SPECIALTIES . .

Putting on the Pressure

Non-flammable hydraulic fluids, with use pushed by insurance companies, are becoming industrially mature.

Major portion of the new non-burning liquids is used in aircraft and special hydraulic machinery where fire is a potential hazard.

Just about over the hump industrially now are non-flammable hydraulic fluids. With insurance companies urging their use, the specialized liquids are being installed in certain hydraulic machinery (ingot manipulators, die cast machines) where high temperatures pose a fire hazard.

Top consumer of the safety fluids now are die-casting machines; there's an estimated 10,000 of them requiring perhaps 50 gals. of fluid apiece. With the materials priced at $2-4/gallon, that's a pretty tidy outlet. And that doesn't include the aircraft market (Navy alone buys ½ million gals./year) for even more expensive fluids.

It's business that a number of firms are vying for. Top competitive items include Carbide and Carbon Chemicals' Ucon hydrolubes, Monsanto's Pydrauls, Hollingshead's H-2. And outfits like E. F. Houghton, Dow Corning, Celanese Corp. and others have safety fluids on the market or in development.

Business Flyer: Many of the same firms supplying industrial fluids are also interested in supplying the hydraulic fluids for aircraft. Here the requirements are far more rigorous—and the fluids more costly. Prices for the aircraft materials run from something under $4/gal. up to better than $12/gal. (petroleum types for aircraft use are approximately $2/gal.)

Both commercial airlines and the military have probed the use of safety hydraulics. Currently the Navy has swung over to use of the Hollingshead H-2 material, which it developed in conjunction with that firm (*CW July 7, '51*); a number of airlines are surveying use of the material, too. H-2 is in competition on the airlines with Monsanto's Skydrol,* which has been standardized by some airlines.

Although the Navy's rather stiff requirements for a hydraulic fluid have been met, no product yet produced has been able to answer all the requirements of the Air Force's Military Specification MIL-F-7100 (*CW, Jan. 5, '52*).

Easy Change: In any application, it is essential that the safety fluid have certain qualities. It should be nontoxic and operate in the machine without requiring changes in the hydraulic system; it should be compatible with petroleum-based fluids (so that change-over can be easily and safely made); be non-corrosive to the metals it contacts (and enert to fiber and rubber gaskets, washers, etc.); and provide enough lubricity for the moving parts in the system.

In addition to these qualifications, aircraft fluids must permit the system to operate over an exceedingly wide range of temperatures. This factor has eliminated a majority of fluids, although a number have been disqualified for other reasons. Industrial specifications, not so strict from a temperature standpoint, have been more easily met.

Composition Variety: There has been a variety of approaches, composition-wise, to the problem of nonflammable hydraulic fluids. Among the products offered industrially are chlorinated hydrocarbons, like the Aroclors (chlorinated biphenyls and polyphenyls) sold by Monsanto, use of which has been somewhat restricted due to toxicity.

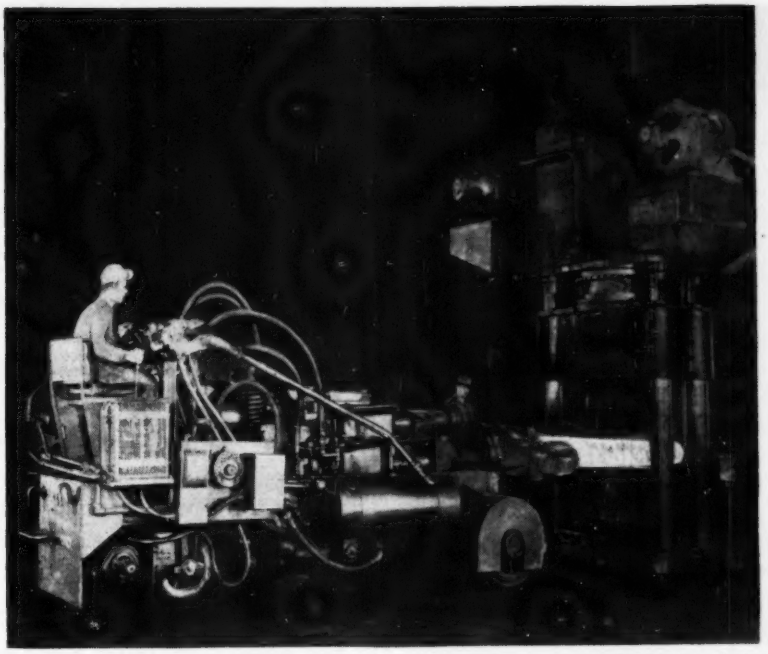
Tricresyl phosphate has been used industrially to some extent. Principal limitations have been poor viscosity-temperature characteristics, and packing material troubles.

Monsanto's Pydraul F is an organic-phosphate ester type of material, similar to its Skydrol. The cost is still fairly high, $3.75/gal. but it appears to pass industrial requirements. Skydrol, but for its effect on rubber packings, can almost meet the stringent requirements of the Air Force MIL-F-7100 specifications.

Monsanto in continuing work on Skydrol, has developed a product said to be good from —65 F to 250 F. Now called OS-40, it may be sold as Skydrol 500.

Water-based hydraulic fluids are being pushed by both Carbide and Carbon and Hollingshead; and the new Houghton product, Hydrodrive NF, is water-containing. The Ucon Hydrolubes, in three grades (of varying vis-

* Developed jointly by Monsanto and Douglas Aircraft, patented by Douglas and made by Monsanto.



UNION CARBIDE & CARBON

INGOT MANIPULATOR: Safety is the sell in non-flammable fluids.

cosity), are such fluids. They are described as mixtures of ethylene glycol with water (for aircraft, the Navy requires a minimum of 35% water) plus thickening agents, viscosity index improvers, lubricity improvers, and corrosion inhibitors.

Most of water-based products are outgrowths of work at the Naval Research Center. The Navy U-4 Hydrolube as originally worked out has been modified by Carbide for industrial use.

Hollingshead's H-2 is also the product of combined industry-Navy efforts. Introduced about a year and a half ago, it has been put in current Navy aircraft as they come off the production lines, and is gradually being put in planes in service. It, too, is an ethylene glycol-water mixture, with inhibitors, and improvers.*

Carbide, working under a Navy research contract, has recently developed another aircraft-type water-based hydraulic fluid formulation, which it called Ucon Hydrolube AC. By use of suitable thickeners and inhibitors (for both liquid and vapor phase) it has come up with what it hopes will eliminate most of the difficulties ascribed to the water-base types. The product is still being tested.

In addition to these types of materials, two somewhat flammable materials, organo silicates and silicones, have been tried. Properly treated with additives, these show good possibilities. An example of the silicone type is Dow Corning's XF-408, a silicone fluorocarbon diester type.

Transition: Of major importance in the use of the non-flammable fluids is the ease of switching over to the new materials. The procedure for making the switch varies, but has not been a major problem. With the water-based types (which appear to be compatible with petroleum-based materials), the old fluid is drained and the system steamed out; a flush run with the new material is made, and then the lines are filled.

With organophosphates such as Pydraul, the recommendation is to drain the lines, put in Pydraul, and then refill with Pydraul when packing is replaced.

Though there has been fault found with some water-based fluids from a corrosion standpoint, and the cost of other types has reduced the eagerness with which they have been welcomed, it appears that the safety advantages far outweigh these disadvantages. It isn't a matter of insurance rates alone, but a simple regard for the value of safety.

* Though the Navy is partly responsible for their development, precise composition of thickeners, etc., is regarded as a "proprietary secret."

Prescription Profits

Despite the wonders of medicine, it seems that the average American householder is spending more money nowadays for pharmaceuticals than ever before. Recent survey by *American Druggist* magazine shows that 419,447,000 prescriptions were filled in 1952.

SPECIALTIES . . . .

In addition to the record number of prescriptions, the dollar outlay for the drugs set a new high—$990,164,000, 12.2% above the previous year's figures.

Pointing up the importance of the antibiotics to modern drug practices, the survey showed that almost one-fifth of the prescriptions filled called for an internal anti-infective drug, usually one of the antibiotics or one of the sulfas. Such products accounted for 18% of the total prescriptions filled.

And showing that rest is much sought-after, sedatives are revealed to be the second most demanded drugs. More than 9% of the prescriptions last year went for these items.

The breakdown of buying shows that the average family trotted to the drugstore for 8.5 prescriptions last year, spent $20.09 for the goods. And encouraging to the small business man is the fact that the independently owned store averaged 8,885 prescriptions; whereas the average chain store filled 8,244.

•

Kleen-Quick Buy: Kleen-Quick Chemical Corp. (Buffalo, N.Y.) has purchased the Holley Chemical Co. (New York), which produces a paint deodorant. The firm's equipment will be shipped to Buffalo and installed in the Kleen-Quick plant for production of the Holley line at the new upstate location.

•

Mud Improver: The Magnet Cove Barium Corp. (Houston, Tex.) has obtained a certificate of necessity from the DPA for a $423,500 oil well drilling mud plant.

•

Packaging Plant: Hellwig, Inc. (Chicago) has leased space in Saranac Lake, N.Y., for use as a packaging plant and warehouse for its pharmaceuticals.

•

Back to the Soil: California Reduction and Fertilizer Co. has opened a new plant in Emeryville, Calif., to handle by-products of the meat industry. General office of the firm is in Berkeley, Calif.

•

Pinch of Caution: Washington State College entomologists have had to caution over-eager farmers in the Pacific Northwest. The farmers, plagued by rodents, thought they had a new rat killer in toxaphene, which they had been spraying on orchards. After dosing the orchards, the farmers, noting that rats and mice had been killed, almost ran away with the idea of a new rodenticide. But, as the entomologists warned, the hazard to

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Dryer, Raymond, Flash, complete. Heat & Power Co., Inc., 70 Pine St., N.Y. 5. Hanover 2-4890.

Dryer, Vac. Shelf 20 Shelves, 59 x 78, pump cond. (5) Consolid'd Prod., 18 Pk. Row, N.Y. 38.

Dryers, 2 Stainless Drums; 5'x10'. First Machinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Evaporator, 148 sq. ft., Monel, double effect. Heat & Power Co., Inc., 70 Pine St., N.Y. 5.

Filter Press, 424 x 42", Iron Shriver, 18, 27, 36, 54 chambers (12). Consolidated Products, 18 Park Row, N.Y. 38.

Filters, all sizes and types. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Filter, Horman 10 Disc, Sanitary Pump & Motor Process Industries, 305 Powell St., Bklyn. DI 2-1021.

Homogenizer, Manton-Gaulin, 400 gallon, 2 stage high pressure pump, or homogenizer, stainless steel head. Explosion proof motor, 20 H.P., 1800 rpm, 220 volt, 3 phase, 60 cycle. $2,500 f.o.b. Clopay Corp., Clopay Square, Cincinnati 14, Ohio.

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Mills, Traylor tube, 5'x22", 5'x20", 4'6"x18'6", 4' x 13', stone lined pebble charge (4). Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

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Pumps, Monel, 100GPM @ 25' head. Heat & Power Co., Inc., 70 Pine St., N.Y. 5. Hanover 2-4890.

Reactors, Pfaudler Jktd. 400 Ga. First Machinery Corp., N.Y. 13, N.Y.

Screens, Two Patterson Gyro-Centric dustite, three interchamble SS Screens 4, 28 and 65 mesh, capacity one ton per hour. $1,000.00 each. Equipment Inc., P.O. Box 479, Hopewell, Virginia, Phone 844, Braddus.

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Tanks, Steel, Processing, 15,000 gal. vertical, 80 lbs. int. pr.; Turbo agitator 40 HP, coils. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

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cattle and horses is about as great as it is to rodents.

•

Textile Helps: Emkay Chemical Co. (Elizabeth, N.J.) is now selling a new low cost graphite remover, designed to clean graphite from nylon lace. It's a combination of Emkaterge A Powder and Emkaterge B.

• For hosiery, the Universal Dye Works, Inc. (Philadelphia) has developed a new bacteriostatic finish for mills. Trade marked Immune, it provides hosiery with what is called a film of protection against bacterial attack. Immune can also be applied to clothing manufacture.

•

Rinso Partner: Rinso Sunlight Detergent has been introduced by Lever Brothers to sell as a companion product to its well-known Rinso granulated soap. Marketing is already under way in the Kansas City area. Rinso, as a soap, will be continued. But the firm says it believes there are some jobs synthetics do better, so it plans to supply the housewife with such a product, one with a name she's familiar with. The detergent Rinso also contains Solium.

•

Neoprene Paint: Another neoprene paint, NeoCoat, has been introduced by the Pennsylvania Salt Manufacturing Co. (Philadelphia). Three types of the new paints have been marketed: NeoCoat and NeoPrime A (for all surfaces except concrete), and NeoPrime B (for concrete surfaces).

The formulations include an accelerator for polymerization. The paints don't require mixing on the job, but polymerize after the coatings have been applied.

•

Blackman Plant: Just completed are the new plant and offices of Blackman Brands, Inc., in South Hackensack, N.J. The new plant will sup-

Specialties Fair

TV's MR. PEEPERS, Wally Cox, was drafted by Wanamaker's (New York) to spark its vigorous (and profitable) promotion of specialties chemicals at the opening of its Chemical Carnival.

The show, which ran till the end of February, starred some 40 "wonder" chemical specialties, had some 20 gaily-decorated booths, and was given an authentic carnival flavor with barkers, music and bustling activity.

A major portion of the housewares section of the Wanamaker store was turned over to the carnival, where the color, the prizes and demonstrations kept the crowd happy.

The sales-spurring affair was well advertised with big display ads in the newspapers, and it received additional boosts from dailies, which gave generous space to the unique specialty promotion.

There was no lack of diversity in the chemicals promoted. All types of household aids from chrome cleaners to anti-static rinses were pushed in demonstrations emphasizing their labor-saving advantages.

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SPECIALTIES . . . . .

plement facilities in Long Island City, where Blackman manufactures higher barbiturates.

•

Less Scratch: Tests at the Davis campus of the University of California in Sacramento, Calif., have shown that mixtures of 2,4-D and 2,4,5-T weed killers look good for control of poison oak.

•

Dye Debut: Hilton-Davis Chemical Co. (Cincinnati) is out with a new line of mixed napthol-diazo dyes. They go by the name Spectrosols, are companion products to the company's Spectroline textile colors. Chief selling point: The new naphthol-diazo mixtures are custom-prepared for individual mills. According to Nelson Knaggs, Hilton-Davis v.p. in charge of sales, Spectrosols will be made up to mill specifications at company plants in Cincinnati and Boston and at Blackman-Uhler Co. (Spartanburg, S.C.), Hilton-Davis' southern representative. There's no extra charge for milling.

•

Freeze Resistant: A new glycol-type anti-freeze for windshield washers is the offering of Automotive Solvents & Specialties, Inc. (St. Clair Shores, Mich.). It's Vizo, packaged in two-ounce, transparent polyethylene envelopes. To use, a corner of the envelope is clipped off, transforming the package into a convenient pouring funnel. Automotive Solvents claims its packaging idea is a first in the auto specialties field.

•

Add Insulator: Royalastic is the brand name for U.S. Rubber Co.'s new adhesive vinyl insulating tape. A black tape, with a dielectric strength of about 10,000 volts, Royalastic is claimed to be resistant to water, acids, alkalies, oil, abrasion and aging (at room temperature). It's available in 30- or 66-foot rolls of ¾-inch width and 10-foot rolls of ½-inch width.

•

Cleaner Advance: Housewives will soon be hearing from Renuzit Home Products Co. (Philadelphia). In a double-pronged sales attack, the company is introducing its Odorless Renuzit cleaner and a recommended method for home use on rugs and upholstery. Crux of the gimmick is a specially designed applicator—called an Eraser—for the new product. Promotion will be by way of national advertising in 60 newspapers servicing 38 major markets. Ad campaign, scheduled to run from March through June, is aimed at sparking sales in groceries, drug and department stores, and other retail outlets.

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BRAKE LININGS: PLYOPHEN powdered phenolic resins.

CANVAS, PAPER AND GLASS CLOTH LAMINATES: PLYOPHEN cresol, phenolic and resorcinol-formaldehyde resins and varnishes; LAMINITE polyester resins.

CASTINGS: FOUNDREZ powdered phenolic resins (for the shell molding process); FOUNDREZ liquid phenolic resins and FOUNDREZ core oils (for core binders).

FURNITURE, PLYWOOD, FLOORING, HARDWOOD AND CHIPBOARD: HYDROPHEN phenolic glues; PLYACIEN protein glues; PLYAMINE urea-formaldehyde glues; PLYOPHEN phenolic and resorcinal-formaldehyde glues.

GRINDING WHEELS: PLYOPHEN powdered phenolic resins.

INSULATION: PLYOPHEN liquid phenolic resins (for binding fibre glass and rock wool batts).

MOLDING COMPOUNDS: PLYOPHEN powdered phenolic resins.

PAINTS, VARNISHES AND LACQUERS: BECKACITE (1) fumaric, (2) maleic and (3) modified phenolic resins; BECKAMINE urea-formaldehyde resins; BECKOLIN synthetic oils; BECKOPOL modified phenolic resins; BECKOSOL (1) phenolated, (2) phthalic-free, (3) rosin modified, (4) pure drying and (5) pure non-drying alkyd resins; KOPOL processed Congo copals; PENTACITE pentaerythritol resins; STYRESOL styrenated alkyd resins; SUPER-BECKACITE pure phenolic resins; SYNTHECOPAL ester gums; WALLKYD pure drying alkyd resins (for alkyd flat wall vehicles); WALLPOL vinyl-type copolymer latex emulsions (for latex flat wall coatings); RCI inorganic chemical pigment colors.

PAPER: BECKAMINE urea-formaldehyde resins (for adding wet strength, improving the wet rub of starch-clay coatings, and waterproofing starch adhesives); RCI inorganic chemical pigment colors (for paper coloring); STYRESOL styrenated alkyd resins (for paper coating).

PRINTING INKS: BECKACITE fumaric, maleic and modified phenolic resins; BECKOLIN synthetic oils; BECKOPOL modified phenolic resins; RCI inorganic chemical pigment colors.

TEXTILES: FABREZ urea-formaldehyde resins (for crush-proofing and dimensional stabilization).

RCI

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Greatly expanded production capacity now makes NIACET Brand Vinyl Acetate monomer available in any desired quantity. Now you can put this competitively priced monomer to immediate use in established applications such as the manufacture of adhesives, emulsion paints, surface coatings, safety glass, or vinyl sheeting, tubing or molded products. Two new uses are already profitable and commercially important—preparation of synthetic textile fibers and soil conditioners. Another look at this reactive monomer may uncover other new and profitable uses for you.

POLYMER PROPERTIES

Vinyl Acetate gives polymers of outstanding bonding strength for wood, glass, paper, metal, and textile fibers. The polymers are transparent, flexible, and show good resistance to abrasion and stability to light.

COPOLYMERIZATION

Vinyl Acetate copolymerizes with other ethylenic monomers such as maleic anhydride, maleic esters, styrene, acrylonitrile, higher vinyl esters, vinyl halides, and acrylic and methacrylic esters.

SPECIFICATIONS

	Vinyl Acetate DPA and Vinyl Acetate HQ
Specific Gravity at 20°C	0.9335—0.9345
Boiling Range at 760 mm. Hg	71.8—73.0°C.
Vinyl Acetate, Minimum	99.50%
Acetaldehyde, Maximum	0.04%
Free Acid (as acetic), Maximum	0.02%
Moisture, Maximum	0.15%
Color (inhibited)	Colorless to Light Yellow
Flash Point (open cup)	20°F.

AVAILABILITY:

Drums (410 lb. net) and Tank Cars (8000 gal., 62,500 lb. net)

NIACET Brand Vinyl Acetate monomer is available in two grades—NIACET Vinyl Acetate DPA, inhibited with diphenyl amine and NIACET Vinyl Acetate HQ, inhibited with hydroquinone. The DPA grade can be stored safely for up to two years but the inhibitor must be removed before polymerization. The HQ grade should be polymerized within 60 days. The inhibitor does not need to be removed.

For prices on this versatile monomer call or write our nearest office.

Did you know---

Six new vinyl esters; vinyl formate, propionate, butyrate, 2-ethylhexoate, benzoate, and crotonate are now available in research quantities. For samples and further information call or write our nearest office.

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CARBIDE AND CARBON CHEMICALS COMPANY

A Division of

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